DVM Manual
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DVM Manual

Welcome

Welcome to Digital Video Management (DVM)!

Thank you for choosing DVM. The Manual, Help Library, Tutorial, Online Reference, and Knowledge Base comprise the comprehensive DVM documentation set.

For additional DVM information, please visit our Web site at http://www.lorexcctv.com. The latest DVM information, technical notes, and downloadable files are now available to you 24 hours a day, seven days a week.

We are committed to providing you with the most interactive presentation tool. Our commitment begins with listening to you. We welcome your comments and suggestions about DVM and its documentation, or any other input you may have. Please e-mail us at support@lorexcctv.com, or by selecting the Send E-Mail option under the Help menu.

We look forward to hearing from you.

Sincerely,

The DVM Team

Version 3.20.128
Requirements

Host System Requirements
- Pentium III or higher
- 256 Mb RAM
- Windows 2000 or higher
- DirectX9-enabled video card and monitor (8 Mb RAM for single camera, or 16 for multiple cameras)

Remote System Requirements
- Pentium III or higher
- 128 Mb RAM
- Windows 2000 or higher
- Super VGA monitor
FCC Compliance

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna increases the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to switch the receiver is connected
- Consult the dealer or an experience radio or television technician for help.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

ALWAYS USE DISCRETION WHEN INSTALLING VIDEO AND AUDIO SURVEILLANCE EQUIPMENT ESPECIALLY WHEN THERE IS PERCEIVED PRIVACY. INQUIRE REGARDING FEDERAL, STATE AND OR LOCAL REGULATIONS APPLICABLE TO THE LAWFUL INSTALLATION OF VIDEO AND OR AUDIO RECORDING OR SURVEILLANCE. PARTY CONSENT MAY BE REQUIRED

Current rating per camera should not exceed 300mA if on board power from the video capture device is used.
Conventions

Throughout this manual a set of comments are employed to provide emphasis to certain points. A left-hand icon indicates the type of comment as follows:

This type of comment represents a feature that is particularly beneficial to the user. Text in this note is italicized and bold.

This type of comment represents information that you will find useful, such as a shortcut or a “how-to” to avoid common mistakes. Text in this note is bold.

THIS TYPE OF COMMENT REPRESENTS SOMETHING TO BE AWARE OF OR BE CAUTIOUS ABOUT. TEXT IS BOLD AND UPPERCASE.
Representing Live and Stopped Video

To avoid confusion the screen shots in this manual are generally taken with a black picture representing live video, as shown below. Exceptions to this will be made when representing quad and other variations of multi-stream video surveillance.

Any window that represents video that has been stopped will display the Lorex Technology Inc logo as shown below:
Representing Toolbar, Dialog, and Menu Options

This Help Library covers various configurations of the DVM product line. Toolbar, dialog and menu options are represented with the maximum number of options available. However, the version that you are viewing may not include all the options available.

For example, a single camera version of DVM will only support one camera and therefore the Local Surveillance toolbar will not contain options for quad and other multi-camera layouts. This manual will present the Local Surveillance toolbar for the maximum number of cameras, which will contain options that are not available for the single camera version of DVM.

If you see a toolbar, dialog, or menu option in this Help Library that does not appear in your application, either you are not running the latest version or the feature is not available in the product you are operating.

In the text of the Help Library a menu option is represented in **bold**, such as:

To switch between icon sizes select any window. Then click the menu option **View | Toggle Toolbar Size** to switch between icon sizes for the active window's toolbar, as shown below.

A toolbar icon is represented by its icon, such as:

...open the local surveillance monitor window by clicking the Local Surveillance Monitor icon 

A dialog button is represented by its picture, such as:

Default Value button
Commonly Used Terms

Enabled vs Disabled Icons

Icons can appear as enabled or disabled. An enabled icon is one that can be pressed by the user. A disabled icon is one that is grayed out and has no reaction to being clicked.

For example, in the Local Surveillance window the Play icon will appear enabled ◀ if video is stopped, and disabled ▶ when video is playing. Conversely, the Stop icon will appear enabled ■ when video is playing, and disabled □ when video is stopped.

An icon is enabled to allow a user to perform a function as a result of clicking the icon. As with the Play and Stop icons, many other icons will change states depending on the state of the window in which the icon appears.
Active vs Inactive Icons

Some icons can take on an Active or Inactive state. An icon must be enabled to be in either an Active or Inactive state. Buttons that can assume an Active or Inactive state are toggled when clicked. One click will set the icon in an Active state. A second click will reverse the state so that the icon is set to an Inactive state. The functions of these icons remain in place when toggled, so that when the icon is clicked once it retains its state until clicked again.

For example, the Pause icon will be enabled while video is playing. When video is first started the Pause icon will appear Inactive. That is, it appears "popped up". The Inactive state indicates that video is not being paused. When the user clicks on the Pause icon it changes states and appears Active. The Active state indicates that video is paused.

A user toggles between Active and Inactive states by clicking the icon.

Only icons whose function can assume an Active or Inactive state can be toggled. Most icons are the simple push-button style that perform a function when clicked but do not change Active/Inactive states.
Click vs Press

For purposes of consistency, this Help Library uses the term 'click' to refer to selecting an icon, and the term 'press' to refer to selecting a button. There is no functional difference between the two terms. They are both terms that refer to selecting an interface object.
Local System vs Target System

Local and target systems are terms that describe two computers that are communicating with each other. The local system is the system that the user is configuring to communicate. The target system is the system that the user is attempted to connect to.

This should not be confused with the host system vs remote system. The local system can be either a host or remote system.
**Host System vs Remote System**

DVM is installed at both the host and remote locations. The *host system* is the system that has the camera attached. The *remote system* connects to the host system to view the host system camera from a remote location.
### Contacting Us

The following 3 options are available for technical support:

<table>
<thead>
<tr>
<th>Type</th>
<th>Contact</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-line Support</td>
<td>Please visit our website at <a href="http://www.lorexccvt.com">www.lorexccvt.com</a> for free technical information anytime and weekly updates to the most frequently asked questions</td>
<td>24 Hours / 7 days a week</td>
</tr>
<tr>
<td>Email Support</td>
<td>Please email your queries to us at <a href="mailto:support@lorexccvt.com">support@lorexccvt.com</a> If you are experiencing a technical problem, you can also send the configuration file to us for assistance</td>
<td>Allow 24 Hours (Mon-Fri) for a technical support person to respond to your query</td>
</tr>
<tr>
<td>Telephone Support</td>
<td>Should you need to talk with a customer support representative please visit our website at <a href="http://www.lorexccvt.com">www.lorexccvt.com</a> for the most up to date telephone customer support phone number. Note that a fee may apply for this service.</td>
<td>Support available 7 Days a week</td>
</tr>
</tbody>
</table>
Tutorial

Tutorial Introduction

The tutorial is designed to guide a user through the common functions of DVM. The details of each module of DVM are more fully described in the Reference section.

Use the Previous ← and Next ➔ buttons to walk through the Tutorial in sequence. Follow the live links to jump to the reference section for more details on a specific subject.
Launching DVM

Host System vs Remote System

DVM is installed at both the host and remote locations. The *host system* is the system that has the camera attached. The *remote system* connects to the host system to view the host system camera from a remote location.
Launch DVM

Launch DVM by one of the following methods:

- From the Programs menu select Digital Video Management | DVM, or
- Double-click on the DVM icon from the Desktop

Depending on whether you are launching from a host system or *remote system* you will be see a slightly different screen layout.

**Host System Default Layout**

**Remote System Default Layout**
Host System Default View

When launching DVM at the *host system* one of the following windows is presented, depending on the version you are running, and whether you have a camera connected to the host system.

Default View with Single Camera Running

If a camera is connected to the host system prior to initially launching DVM, the default view of DVM displays the Local Surveillance monitor. If you do not see the view below, open the local surveillance monitor window by clicking the Local Surveillance Monitor icon on the main window toolbar.
DVM may launch with no Local Surveillance Monitor displayed, as shown below. Make sure that a camera is connected to the host system first, and then open the local surveillance monitor window by clicking the Local Surveillance Monitor icon on the main window toolbar.
Remote System Default View

When launching DVM at the remote system the main window is presented with the Local Surveillance Monitor icon disabled since no local camera is connected to the remote system.

Click the Remote Surveillance Monitor icon to open the Remote Surveillance Monitor window.
Before pressing the Play ♪ icon, the Remote Surveillance Monitor settings must be configured to connect to a *host system*. Press the Settings ☰ icon on the Remote Surveillance window toolbar to configure the Remote Surveillance Monitor to point to a specific host system.
Common Functions

Tutorial: View Local Camera

If the local camera is not yet playing when you launch DVM then you can start the local camera from the main toolbar. To view a local camera, first make sure that a camera is connected to the host system, and then open the local surveillance monitor window by clicking the Local Surveillance Monitor icon on the main window toolbar. The Local Surveillance Monitor window will appear with video as shown below. If you do not see any video when you open the Local Surveillance window refer to the problem solving page: FAQ: Video Does Not Display.

The toolbar will activate the icons that are available while local video is playing. To stop video from playing press the Stop button. The local camera will stop playing and you will see the following window:
Notice that most toolbar icons on the Local Surveillance window are now disabled. To restart the local camera press the Play ▶ button again.
Tutorial: Record Video

Once video is playing (to play video refer to the tutorial section View Local Camera) simply press the record button 📹 on the Local Surveillance window toolbar to start recording. Once recording has started the Record button will become depressed, as shown below. If the Record button is not depressed or any other problems occur when you start recording, refer to the problem solving page: Local Video Recording Does Not Work.

To stop recording press the record button 📹 again, and recording will stop.
Tutorial: Playback Video

After recording video you can find and playback video at any time in the Video Recordings window.

![Warning]

NOTE THAT IN ORDER TO SEE A VIDEO THAT HAS BEEN RECORDED, THE VIDEO THAT GENERATED THE RECORDING MUST BE STOPPED.

To display the Video Recordings window press the Video Recordings button on the main window toolbar. The following window will appear:

The Video Recordings window open to the current calendar day.
Note that any day in the calendar that contains video recordings is set to bold.

To play a video recording select the recording in the video recordings list and press the Play button, or simply double-click the recording label.
Remote Surveillance

Tutorial: Remote Surveillance Basics

Remote surveillance is the connection between a *remote system* and a *host system* via the Internet. A host system has one or more connected cameras which broadcasts video to the Internet. The remote system connects to the video by pointing to the location from which the host system is broadcasting.

Setting up a remote surveillance connection requires two steps:

1. Broadcast video from the host system
2. Connect the remote system to the host system

A more complete explanation of remote surveillance is described in the Reference section of this Help Guide.
Tutorial: Broadcast Video From the Host System

Video is broadcast from the Local Surveillance monitor window while video is being played. From the Local Surveillance monitor window toolbar press the Broadcast button while video is being played. Once broadcasting has started the Broadcast button will become depressed, as shown below. If the Broadcast button is not depressed or any other problems occur when you start broadcasting, refer to the problem solving page: Broadcasting Does Not Work.

Once video is broadcasted a remote DVM user can connect to the host system.

IF THE HOST SYSTEM IS BEHIND A FIREWALL OR ROUTER THEN SOME FIREWALL AND/OR ROUTER CONFIGURATION WILL BE NECESSARY.

To stop broadcasting press the Broadcast button again, and broadcasting will stop.
Tutorial: Connect the Remote System

From the *remote system* main window toolbar press the Remote Surveillance Monitor icon to open the Remote Surveillance Monitor window.

**IN ORDER FOR A REMOTE SYSTEM TO CONNECT TO A HOST SYSTEM, THE HOST SYSTEM MUST BE PLAYING AND BROADCASTING VIDEO.**

To enter the location of the host system press the Settings button on the Remote Surveillance window toolbar to prompt the monitor settings dialog. Select the Host Access tab.
Enter the *IP Address* of the host system in the IP Address field. Press **OK** to save the results.

There are a variety of options to access a host system. This tutorial uses the simplest method that assumes the IP address of the host system is fixed and known. For other methods in situations where the IP address of the host system may not be fixed or known, refer to the Knowledge Based Article [Remote Surveillance](#).

To connect to the host system press the Play button. If you do not see any video after 20 - 30 seconds refer to the problem solving page: [Remote System Does Not Connect to Host System](#).

To stop remote video from playing press the Stop button. The connection to the host system will stop.
Setup Alarm

Tutorial: Alarm Basics

An alarm is an action that is triggered when motion is detected. A typical configuration is to set DVM to record video or to e-mail a message when motion is detected.

There are two requirements to setting an alarm:

1. Configure motion detection
2. Configure an alarm

A more complete explanation of motion detection and alarms are described in the Reference section of this Help Guide.
Tutorial: Configuring Motion Detection

Motion detection is configured from the Local Surveillance monitor window.

It is not necessary for the local surveillance camera to be playing when motion detection is being configured. This tutorial assumes that the local camera is playing. The dialogs and screen shots will be slightly varied if motion detection is being configured when the camera is not playing.

From the Local Surveillance monitor window toolbar press the Settings button to prompt the monitor settings dialog.

When video is playing the monitor settings dialog only contains two tabs. The default tab is the Video Sources list, which lists the cameras that are associated with this monitor. For single-camera systems there will always only be one camera in the list.

There is a lock on the camera label icon to indicate that certain features are not available for configuration while video is playing. The lock is not present when video is stopped.

Motion detection settings are based on the camera settings. To display the camera settings dialog double click on the camera label - in this case the label titled [Camera 1]. This will prompt the camera settings dialog.
When video is playing the only tab that is available for camera configuration is the Motion Detection tab. Check the **Active** checkbox to set the camera's motion detection capability on. Check the **Show Zones** checkbox to see the motion detection zones that are selected (see below). The lighting and range sensitivity can be set and reset as necessary to adjust the motion sensitivity. Press the OK button to save the motion detection settings. Then press the OK button to save the monitor settings.

**IF THE MONITOR SETTINGS DIALOG IS CANCELED, EVEN THOUGH THE CAMERA SETTINGS DIALOG WAS SAVED, THE CAMERA SETTINGS MAY STILL BE LOST.**

At this point motion is being detected within the entire video frame. To detect motion within a particular zone, press the Set Zone button on the Local Surveillance monitor toolbar. This prompts the Zone Detection dialog.
Select a zone by placing the mouse anywhere in the video window of the Zone dialog, then pressing the left mouse button and dragging until the desired area is selected. Press the OK button to save the selected Zone.

*Up to 100 zones can be set for each camera.*
Tutorial: Configuring an Alarm

Motion detection is configured from the Local Surveillance monitor window.

It is not necessary for the local surveillance camera to be playing when motion detection is being configured. This tutorial assumes that the local camera is playing. The dialogs and screen shots will be slightly varied if motion detection is being configured when the camera is not playing.

From the Local Surveillance monitor window toolbar press the Settings button to prompt the monitor settings dialog. When video is playing the monitor settings dialog only contains two tabs. The default tab is the Video Sources list, which lists the cameras that are associated with this monitor. Select the Alarms & Events tab.

To add an alarm press the Add... button, which prompts the New Alarm/Event Settings dialog.
Set the schedule during the week in which motion should be detected by selecting the day(s) of the week, and then the times within those days. The scheduled will repeat on a weekly basis.

Next select the action that will occur when motion is detected. To add a video recording session when motion is detected select the **Add** button in the Actions section at the bottom of the dialog. This will prompt the Add Recording dialog.
By default the Record Video action is set to 1 minute. Change the value to the desired amount of video that will be recorded when motion is detected. Press the OK button to save the Video Record action. The New Alarm/Event Settings dialog will look similar to the one below, depending on the schedule and the amount of video record time selected.

Press the OK button to save the Alarm. The Alarms & Events tab will now look like the one below.
Press the **OK** button to save the monitor settings.

**Warning**: IF THE MONITOR SETTINGS DIALOG IS CANCELED, EVEN THOUGH THE ALARM/EVENT SETTINGS DIALOG WAS SAVED, THE SETTINGS MAY STILL BE LOST.

DVM will now be able to record video each time motion is detected.
Reference

Main Window

Main Window Toolbar

The main window toolbar is used to launch the main functions of DVM. The main window toolbar can be displayed as small or large icons. Each icon is associated with a menu item.

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Large Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="List of Monitors" /></td>
<td><img src="image" alt="List of Monitors" /></td>
<td>List of Monitors</td>
<td>Opens a window that lists the various monitors configured for the system; This icon is only available on certain versions of DVM</td>
</tr>
<tr>
<td><img src="image" alt="Local Surveillance Monitor" /></td>
<td><img src="image" alt="Local Surveillance Monitor" /></td>
<td>Local Surveillance Monitor</td>
<td>Open the local surveillance monitor window to view one or more local cameras connected to the host system</td>
</tr>
<tr>
<td><img src="image" alt="Remote Surveillance Monitor" /></td>
<td><img src="image" alt="Remote Surveillance Monitor" /></td>
<td>Remote Surveillance Monitor</td>
<td>Open the remote surveillance monitor window to view one or more remote cameras connected to the host system</td>
</tr>
<tr>
<td><img src="image" alt="Video Recordings" /></td>
<td><img src="image" alt="Video Recordings" /></td>
<td>Video Recordings</td>
<td>Open the video recordings window to view video that was previously recorded</td>
</tr>
<tr>
<td><img src="image" alt="View Pictures" /></td>
<td><img src="image" alt="View Pictures" /></td>
<td>View Pictures</td>
<td>Open the pictures window to view list of pictures</td>
</tr>
<tr>
<td><img src="image" alt="View Feedback Window" /></td>
<td><img src="image" alt="View Feedback Window" /></td>
<td>View Feedback Window</td>
<td>Open the feedback window to view status, warning, and error messages generated by DVM</td>
</tr>
<tr>
<td><img src="image" alt="Prompt Application Settings" /></td>
<td><img src="image" alt="Prompt Application Settings" /></td>
<td>Prompt Application Settings</td>
<td>Prompts the user with a tabbed dialog of application settings</td>
</tr>
</tbody>
</table>

The following is a brief description of each of the icons on the Main Window toolbar. Some version of DVM may have fewer icons than listed below. Click on the item for additional information.
Main Menu

Most menu items are covered in the [Main Window Toolbar](#) reference. The following menu options are not available from the main window toolbar.

---

The list below only contains menu options that are not covered in the Main Window Toolbar reference

<table>
<thead>
<tr>
<th>Top Level Menu</th>
<th>Menu Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>Close</td>
<td>Close the internal window that has the windows focus</td>
</tr>
<tr>
<td>Main</td>
<td>Exit</td>
<td>Exit the application</td>
</tr>
<tr>
<td>View</td>
<td>Toolbar</td>
<td>Toggles the toolbar for the internal window that has the current focus; if no window is open then this option toggles the main window toolbar</td>
</tr>
<tr>
<td>View</td>
<td>Status Bar</td>
<td>Toggles the status bar for the main window</td>
</tr>
<tr>
<td>View</td>
<td><strong>Toggle Toolbar Size</strong></td>
<td>Toggles between large and small icons of the toolbar for the internal window that has the current focus; if no window is open then this option toggles between large and small icons of the main window toolbar</td>
</tr>
<tr>
<td>Tools</td>
<td>DDNS Server</td>
<td>Displays the DDNS Server to set up the host with the DDNS Server</td>
</tr>
<tr>
<td>Tools</td>
<td>Broadcast Security</td>
<td>Displays a window that allows or denies remote users from logging into the host</td>
</tr>
<tr>
<td>Tools</td>
<td>Sound Recorder</td>
<td>Launches the Windows Sound Recorder application in its own window</td>
</tr>
<tr>
<td>Tools</td>
<td>Hide Application</td>
<td>Hides the application while maintaining all cameras that are currently running</td>
</tr>
<tr>
<td>Tools</td>
<td>Reset Monitors</td>
<td>Resets the list of monitors to the default state</td>
</tr>
<tr>
<td>Window</td>
<td>Cascade</td>
<td>Cascade all open windows</td>
</tr>
<tr>
<td>Window</td>
<td>Tile</td>
<td>Tile all open windows</td>
</tr>
<tr>
<td>Window</td>
<td>Arrange Icons</td>
<td>Arrange all open icons</td>
</tr>
<tr>
<td>Help</td>
<td>Help</td>
<td>Opens a new window with the Help</td>
</tr>
<tr>
<td>Help</td>
<td>library</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>EMail Support</td>
<td>Launches a new e-mail to contact support</td>
<td></td>
</tr>
<tr>
<td>Check for Updates</td>
<td>Checks for on-line updates to the application</td>
<td></td>
</tr>
<tr>
<td>About</td>
<td>Contains information about DVM and some statistics</td>
<td></td>
</tr>
</tbody>
</table>
Small vs Large Toolbar Icons

Every window, including the main application, contains a toolbar with options that are relevant for that window. Even the main application contains a toolbar to launch different components of the application. You can switch between standard (small) icons and large icons for every window, including the main application window.

To switch between icon sizes select any window. Then click the menu option **View | Toggle Toolbar Size** to switch between icon sizes for the active window's toolbar, as shown below.

![Toolbar Size Options]

By default the application and all its windows default to standard (small) icons. Switching the toolbar size will cause the active window to switch between small and large icons as shown below:

- **Main Window with Standard (Small) Icons**
- **Main Window with Large Icons**
To toggle the main window toolbar make sure that no other window is open when selecting the View | Toggle Toolbar Size menu option. The toolbar size of any other window can be toggled by selecting the window and then selecting the View | Toggle Toolbar Size menu option.
Application Settings

Application Settings Dialog

The application settings dialog controls features that affect the entire application. To select the application settings dialog click the Settings icon on the main application toolbar. The following dialog will be displayed:

The main application settings dialog contains the following tabs (click on each tab's link for more information about the settings of the tab):

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Overlay</td>
<td>Toggle the type of text that is displayed (overlayed) onto video, such as the video source name and time stamp</td>
</tr>
<tr>
<td>E-Mail</td>
<td>Set the values for connecting to an e-mail account for sending e-mails that are triggered as a result of an alarm or scheduled event</td>
</tr>
<tr>
<td>Storage</td>
<td>Set the values for the location and amount of time video and pictures are stored</td>
</tr>
<tr>
<td>Local Surveillance</td>
<td>Configure the default action for the local video surveillance window</td>
</tr>
<tr>
<td>Feedback</td>
<td>Settings that relate to the Feedback window</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------</td>
</tr>
</tbody>
</table>

DVM Manual
Local Surveillance Monitor

Local Surveillance Monitor Layout

The Local Surveillance Monitor displays one or more cameras that are connected to the Local Surveillance window.

A monitor is a surveillance window that displays the video of one or more cameras. For more information on monitors and cameras see Cameras and Monitors.

When no video is playing the Local Surveillance toolbar appears as shown below:

Once video starts to play the Local Surveillance window toolbar automatically changes as shown below.

The Local Surveillance toolbar contains icons that depend on the system you have installed. Single-camera systems display fewer icons than multi-camera systems.
The display area displays video from one or more cameras, depending on the system purchased. The toolbar controls the video and enables the user to configure monitor and camera settings.
Local Surveillance Toolbar

The toolbar of the Local Surveillance window controls the video being displayed, and enables the user to configure settings related to the monitor and the connected cameras.

The Local Surveillance toolbar contains icons that depend on the system you have installed. Single-camera systems display fewer icons than multi-camera systems.

ICONS WILL ONLY APPEAR ENABLED IF THEY ARE CAPABLE TO PERFORMING AN ACTION. FOR EXAMPLE, THE STOP ICON WILL ONLY BE ENABLED IF VIDEO IS BEING PLAYED.

The Local Surveillance toolbar contains the following possible options:

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pause</td>
<td>Pause video</td>
</tr>
<tr>
<td></td>
<td>Play</td>
<td>Play video</td>
</tr>
<tr>
<td></td>
<td>Stop</td>
<td>Stop video</td>
</tr>
<tr>
<td></td>
<td>Record</td>
<td>Start to record video</td>
</tr>
<tr>
<td></td>
<td>Broadcast</td>
<td>Broadcast video to enable remote surveillance</td>
</tr>
<tr>
<td></td>
<td>Enable Audio</td>
<td>Host audio conferencing</td>
</tr>
<tr>
<td></td>
<td>Conferencing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Picture</td>
<td>Take a picture</td>
</tr>
<tr>
<td></td>
<td>Set or Move Zones</td>
<td>Set or move zones for motion detection</td>
</tr>
<tr>
<td></td>
<td>Settings</td>
<td>Display monitor and camera settings dialog</td>
</tr>
<tr>
<td></td>
<td>Camera 1</td>
<td>Switch to display camera 1 (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Camera 2</td>
<td>Switch to display camera 2 (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Camera 3</td>
<td>Switch to display camera 3 (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Camera 4</td>
<td>Switch to display camera 4 (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Rotate Sequence</td>
<td>Display cameras in timed sequence -</td>
</tr>
<tr>
<td>Mode</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Quad</td>
<td>Display cameras in quad mode (only available with multi-camera version)</td>
<td></td>
</tr>
<tr>
<td>Picture in Picture 1</td>
<td>Display cameras in picture-in-picture 1 mode (only available with multi-camera version)</td>
<td></td>
</tr>
<tr>
<td>Picture in Picture 2</td>
<td>Display cameras in picture-in-picture 2 mode (only available with multi-camera version)</td>
<td></td>
</tr>
<tr>
<td>Picture in Picture 3</td>
<td>Display cameras in picture-in-picture 3 mode (only available with multi-camera version)</td>
<td></td>
</tr>
</tbody>
</table>
Controlling Local Surveillance Video

The Local Surveillance window allows you to control the video display using VCR-style icons. The icons for controlling basic video operation are the familiar Play ✪, Pause II, Stop ■, and Record ✰ icons.

When video is stopped only the Play icon is enabled. When video is playing, the Pause, Stop and Record icons become enabled, and the Play icon is disabled.

When the Local Surveillance window first starts up it will by default attempt to play video. There can often be a delay of several seconds, depending on the power of your system and the number of cameras being displayed, before video is actually displayed. This startup time is being used by DVM to initialize cameras, setup the motion detection, and to initialize alarms and scheduled events.

A delay of several seconds when first starting up a Local Surveillance window is typical. The startup time is dependant on the power of your system and the number of cameras supported.

Keep the following points in mind when controlling Local Surveillance:

- **Play ✪** - The Play button is only enabled when video is stopped. When video is playing the Play button is disabled.

- **Pause II** - The Pause button is only enabled while video is playing. When video is paused only the display freezes. All other functions that depend on video being displayed continue. Even while video is paused video can be recorded and broadcast in real-time. The Pause button works as a toggle. Click once to freeze the display window. Click a second time to unfreeze video. The display will jump to the current action immediately. No other aspect of the video stream will be affected.

- **Stop ■** - The Stop button is only enabled while video is playing. When the Stop button is pressed all functions that depend on video playing, such as recording and broadcasting, also stop.

- **Record ✰** - The Record button is only enabled while video is playing. When the Record button is clicked video starts recording immediately. There is no delay nor is there any disruption to the video being displayed. The Record button will remain active for the duration of the video being recorded.
Local Surveillance Settings

Click the Settings icon in the Local Surveillance window toolbar to display the Local Surveillance Monitor settings dialog.

THE MONITOR SETTINGS DIALOG WILL APPEAR DIFFERENTLY DEPENDING ON WHETHER VIDEO IS BEING DISPLAYED.

Monitor Settings When Video Is Playing

When video is being displayed many settings are not available that are actively being used by DVM. All monitor settings automatically become available when video stops playing.

The dialog displays several tabs that are used to configure the Local Surveillance monitor as follows:

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Name of monitor</td>
</tr>
<tr>
<td>Video Sources</td>
<td>List of Videos Sources (typically cameras) that are connected to this</td>
</tr>
<tr>
<td><strong>monitor</strong></td>
<td>Broadcast</td>
</tr>
<tr>
<td>Communication</td>
<td>Values that affect how data is communicated between the <em>host system</em> and a <em>remote system</em></td>
</tr>
<tr>
<td>Alarms &amp; Events</td>
<td>List of alarms and events associated with this monitor</td>
</tr>
</tbody>
</table>
Monitor Setting Tabs

Monitor Setting - General Tab

The General tab contains information that describes the monitor.

![Monitor Settings: Single Camera](image)

The General Tab contains the following fields:

- **Label** - The Label is the name assigned to the Monitor. When DVM first starts up it automatically assigns names to monitors based on their function, such as 'Single Camera' for a Local Surveillance monitor if the monitor supports only one camera. A user can modify the name of the monitor to something more indicative to the setting, such as 'Store Monitor'. The name of the monitor appears in the window title. For example, a single camera monitor will by default have a label of 'Single Camera'. The title on the Local Surveillance window will read 'Local Surveillance: Single Camera', as shown below. Changing the label will change the title of the Local Surveillance window.
• **Type** - The type of monitor is assigned by DVM and is used for information purposes only.
Monitor Settings - Video Sources Tab

The Video Sources tab lists the cameras that are connected to this monitor. Cameras are represented with a camera icon and a camera label.

**THIS TAB APPEARS DIFFERENTLY DEPENDING ON WHETHER VIDEO IS BEING DISPLAYED.**

**Video Sources Tab When Video Is Playing**

When video is not being displayed then the user can select which camera should be connected to the monitor. When multiple cameras are connected to the host system the user ‘connects’ a camera to the monitor by selecting the check box to the left of the camera, as shown above.

When video is playing then only the active camera(s) are displayed in the Video Sources list with a lock on the camera. This indicates that the user cannot change cameras that are connected to the monitor while video is running.

*Double click on a camera in the Video Sources list to configure the individual camera settings.*
Double click on a Video Source to display the Video Source settings dialog.

THE VIDEO SOURCE SETTINGS DIALOG WILL APPEAR DIFFERENTLY DEPENDING ON WHETHER VIDEO IS BEING DISPLAYED.

Video Source Settings When Video Is Playing

Video Source Settings When Video Is Not Playing

When video is being displayed many settings are not available that are actively being used by DVM. All video source settings automatically become available when video stops playing.

The dialog displays several tabs that are used to configure the video source as follows:

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Name of the video source</td>
</tr>
<tr>
<td>Video Device</td>
<td>The video device that is associated with this camera</td>
</tr>
<tr>
<td>Video Profile</td>
<td>Values that affect the level of quality with which video from this camera is recorded and broadcasted</td>
</tr>
<tr>
<td>Audio Device</td>
<td>The audio device that is associated with</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Audio Profile</td>
<td>Values that affect the level of quality with which audio from this camera is recorded and broadcasted</td>
</tr>
<tr>
<td>Motion Detection</td>
<td>Values that affect the sensitivity of motion detection</td>
</tr>
</tbody>
</table>
Video Source Settings

Video Source Settings - General Tab

The General tab contains information that describes the video source.

The General Tab contains the following fields:

- **Label** - The Label is the name assigned to the Video Source (that is the camera). When DVM first starts up it automatically assigns a name to each new physical video device that it finds connected to the system, such as '[Camera 1]', '[Camera 2]', '[Camera 3]' etc. A user can modify the name of the camera to something more indicative, such as 'Front Door'. The name of the camera appears as an overlay to the image when video is playing.

- **Type** - The type of video source is assigned by DVM and is used for information purposes only.
Video Source Settings - Video Device Tab

The Video Device tab enables the selection and preview of the physical video device to the Video Source.

![Video Source Settings: [Camera 1]](image)

This tab is only available when video is not running.

The DVM installation includes a driver called DVS Video for video and DVS Audio for audio.

The Video Device tab contains the following fields:

- **Video Device** - This drop-down selection enables the user to select the physical video device that is associated with this Video Source. DVM populates this field with all available Windows video devices. If no device was selected DVM will select the default Windows video device.

If multiple copies of an identical device are connected to a host system then the list of video devices that appears in the Video Device drop-down list will contain as many identical names as...
devices. For example, if you connect multiple DVM Video Grabbers into the host system then each device will be listed in the Video Device drop-down as 'DVS Video'. Use the Preview button to see which video is associated with which driver in the list.

- **Format** - The Format field enables the user to select the physical resolution and video format that the camera driver will deliver to Windows. Leaving the value as (default) will allow the driver to select its native default format and resolution.

  The Format drop-down may appear to contain duplicate entries, such as two entries for a single resolution of 320 x 240. The number of entries are derived from the driver itself. When DVM does not recognize a pre-defined Windows format it list the format as unknown. That may cause two unrecognized formats to be listed as both 'Unknown, res 240 x 320'.

- **Preview Button** - Click this button to preview the selected video device in the Preview window. This is a useful test to ensure that the video device selected in the Video Device drop-down box is the one that was intended.

  The Preview button is especially useful when two drivers are named the same and you need to determine which camera is associated with which device.

- **Settings Button** - The Settings button is used to display the native driver Settings dialog. Most drivers have an internal dialog that is used for resolving driver-level issues. Access to the native driver settings is available only for informational and debugging purposes, and is not necessary for the operation of DVM.

  EVERY NATIVE DRIVER DIALOG WILL BE UNIQUE. REFER TO THE DRIVER MANUAL OR ON-LINE DRIVER HELP FOR INFORMATION REGARDING THE NATIVE DRIVER SETTINGS DIALOG.

Selecting the **Settings Button** prompts with the following driver **Properties** dialog.
The DVS driver Properties dialog is useful to set:

- Brightness
- Contrast
- Hue
- Saturation
- Sharpness

Other drivers may offer different properties that can be configured.
Video Source Settings - Video Profile Tab

The Video Profile tab contains information that determines the quality of the image that is captured to disk (recorded) and broadcasted by the video source.

This tab is only available when video is not running.

The Video Profile tab contains the following fields:

- **Codec** - This drop-down selection enables the selection of a codec to use for recording and broadcasting video. The default value is Windows Media Video 9. It is not recommended to modify this value.

- **Bitrate** - The bitrate is the speed in bits per second that video is recorded and broadcasted. This value defaults to 100,000 bps for a single camera monitor. For multi-camera monitors this value will typically be split among all cameras. For example for a 4-camera monitor the bitrate for each camera will default to 25,000 bps. The bitrate is not absolute. The Windows Media platform will attempt to combine all the profile values and fit the profile into the selected bitrate value. The actual bitrate will be up to the selected bitrate value.

- **Buffer** - The buffer is the amount of bytes that the codec will set aside as extra memory to handle the video stream. The default value is 3,000 bytes. Each 1,000 bytes typically translates to 1 second worth of video.
buffer. The advantage of a buffer is that if the CPU is overloaded for a second the video in the buffer will ensure smooth and clear video.

- **Width/Height** - The width and height values determine the resolution of the image that is recorded or broadcasted. Even though the camera may be capturing video at a high resolution the profile can reduce or adjust the resolution to better suite recording or broadcasting conditions. The default values are 320 pixel height x 240 pixel width video resolution.

- **FPS** - The Frames Per Second determines the number of frames that are recorded or broadcasted per second. This may differ from the FPS of the camera itself, which is generally set in hardware as 30 FPS. DVM defaults the FPS to 30 FPS for a single camera monitor, and to equal divisions into 30 of a multi-camera monitor. The advantage of adjusting the FPS is to better suit recording or broadcasting conditions, such as when there is limited disk space or bandwidth.

- **Quality** - The Quality field is a numerical value that determines the trade-off the codec makes when determining whether to favor higher quality or better disk utilization. The valid values are from 1 to 100. This value is set to a default of 50.

- **Seconds per Key Frames** - Windows Media attempts to efficiently condense video by only taking a full picture of the image every several seconds, and taking the difference between frames for the remaining seconds. A full frame picture is called a key frame. Since typical video content does not change very rapidly, by taking only the differential between frames Windows Media is able to better condense the video to disk for recording and to the Internet for broadcasting. The default value is to take a key frame every 8 seconds. Adjust this value higher for more efficient use of disk space and bandwidth.

- **Default Button** - Click this button to reset the Advanced profile values to their default state.
Video Source Settings - Audio Device Tab

The Audio Device tab enables the selection of the physical audio device to the Video Source.

This tab is only available when video is not running.

The Audio Device tab contains the following fields:

- **Audio Device** - This drop-down selection enables the user to select the physical audio device that is associated with this Video Source. DVM populates this field with all available Windows audio devices. By default no audio device is selected.

  If multiple copies of an identical device are connected to a **host system** then the list of audio devices that appears in the Audio Device drop-down list will contain as many identical names as devices. For example, if you connect multiple DVM Video Grabbers into the host system then each device will be listed in the Audio Device drop-down as 'DVS Audio'.

![Video Source Settings: [Camera 1]](image-url)
- **Play Local Audio** - This check box turns on or off the ability to listen to the audio on the local host computer as it is being recorded or broadcast. By default this value is unchecked.

  **CAUTION MUST BE TAKEN NOT TO PLACE AN AUDIO DEVICE CLOSE TO THE HOST SYSTEM WHEN PLAY LOCAL AUDIO IS CHECKED. THIS CAN CAUSE A SEVERE FEEDBACK LOOP THAT WILL RESULTING IN SCREECHING AUDIO.**

- **Record Audio** - This check box turns on or off audio during recording. When this value is checked then the selected audio device will be recorded along with the video device selected for this Video Source. By default this value is unchecked.

  **If either Play Local Audio or Record Audio is checked but no Audio Device is selected then DVM will use the default audio device found in Windows Device Manager.**
Video Source Settings - Audio Profile Tab

The Audio Profile tab contains information that determines the quality of the audio that is captured to disk (recorded) and broadcasted by the Video Source.

This tab is only available when video is not running.

The Audio Profile tab contains the following fields:

- **Codec** - This drop-down selection enables the selection of a codec to use for recording and broadcasting audio. The default value is Windows Media Audio 9. It is not recommended to modify this value.

- **Format** - The format value determines the quality of audio that is recorded and broadcasted. This value defaults to 8 Kbps, 8 Khz mono CBR. Only change this value if there is a particularly necessary reason to capture higher quality audio. Increasing the quality can dramatically increase the storage and bandwidth requirements.

- **Buffer** - The buffer is the amount of bytes that the codec will set aside as extra memory to handle the audio stream. The default value is 3,000 bytes. The advantage of a buffer is that if the CPU is overloaded the audio in the buffer will ensure smooth and clear audio.
The Motion Detection tab contains the following fields:

- **Active** - The Active checkbox is used to turn motion detection on and off. By default motion detection is set to off.

- **Show Zones** - This value is used in conjunction with activating motion detection to show the zones that are selected within the display window. When checked this value indicates to the Local Surveillance window to display the zones for this Video Source as yellow transparent blocks. By default this value is unchecked.

- **Dwell Time** - The Dwell Time is the amount of seconds DVM waits after motion has been detected prior to checking again for motion. By default this value is set to 5 seconds.

AFTER MOTION HAS BEEN DETECTED DVM WILL WAIT THE AMOUNT OF SECONDS SET IN THE DWELL TIME BEFORE CHECKING FOR MOTION. ANY MOTION THAT OCCURS DURING THE DWELL TIME WILL BE IGNORED BY DVM AND WILL NOT TRIGGER AN ALARM.
• **Vibration Filter** - The Vibration Filter field determines the numerical tolerance to vibration that occurs within the scenery of the camera's view. For example, a tree blowing in the background produces a certain amount of motion continuously. This type of continuous motion can be filtered out of the motion detection algorithm using a higher value for the Vibration Filter. In general, this value should not be adjusted. Rather, it is best to start with adjusting the Lighting and Detection Range instead to adjust the sensitivity to motion. This value should only be used once a clear set of values is established for the Lighting and Detection Range. Higher values will filter out greater amounts of continuous motion. This field is set to 4 by default.

• **Lighting** - The Lighting sliding scale determines the level of sensitivity the motion detection algorithm will have to lighting conditions. When viewed by a camera that digitizes a scene, every light generates some level of "movement" by casting variations of light between frames. Every environment has its own distinct set of values that are considered steady state. There is no universal setting that can be used for lighting under any condition. This value should be set by experimenting with the lighting conditions within the scenery of the camera.

• **Detection Range** - The Detection Range scale determines the sensitivity to small movements within the scenery of the camera. In general, set the scale to more sensitive to detect motion at farther distances where small movement needs to trigger an alarm. Set the scale to less sensitive to field detect motion at closer range where a greater movement is required to trigger an alarm.
Monitor Settings - Broadcast Tab

The Broadcast tab contains information that describes how video will be broadcasted to remote systems.

This tab is only available when video is not running.

The Broadcast tab contains the following fields:

- **Video Port** - The Video Port is the system and router port through which video will be broadcasted. The default value is port 5700. Users can modify this value. However, it should generally have a value between 5501 and 64000. Values below 5501 are considered reserve values for Windows and routers. Values above 6400 are not valid.
Monitor Settings - Communication Tab

The Communication tab contains information that describes how non-video data will be communicated between the host system and remote systems.

![Monitor Settings: Single Camera](image)

This tab is only available when video is not running.

The Communication tab contains the following fields:

- **Send data port** - All communication must be done through a designated port. By default data is sent out from the local system through port 5600. Users can modify this value. However, it should generally have a value between 5501 and 64000. Values below 5501 are considered reserve values for Windows and routers. Values above 6400 are not valid.

- **Receive data port** - The target system with which data is being communicated can also designate a specific port through which it communicates data. By default the target system data port is also set to port 5600. Users can modify this value. However, it should generally have a value between 5501 and 64000. Values below 5501 are considered reserve values for Windows and routers. Values above 6400 are not valid.

- **Password** - The local system can designate a password that is necessary for any data communication to occur. By leaving this field blank indicates that there is no password requirement for the remote system to access the...
host system data. Enter a password to require the remote system to provide a password when initiating a communication session with the host.

- **Confirm** - The Confirm field is used to verify that the password entered was the intended value. By forcing the user to enter the password twice ensures that the value is correct.

The Send and Receive data communication ports can be the same value since they represent ports on two separate systems, the local and target systems respectively.
Monitor Settings - Alarms and Events Tab

The Alarms and Events tab is used to create, delete and edit alarms and events.

The Alarms and Events is described in its own section.
Broadcasting Video

Once video is playing in the Local Surveillance window click the Broadcast icon to start broadcasting the video so that it is available for remote viewing. The Broadcast icon will remain active for as long as video is being broadcasted.

A REMOTE SYSTEM WILL NOT BE ABLE TO VIEW THE HOST SYSTEM VIDEO UNLESS THE BROADCAST ICON IS ACTIVE ON THE HOST SYSTEM.

Broadcasting video can be started and stopped as many times as necessary. The Broadcast icon works as a toggle to start and stop broadcasting.

The only indication that video is being broadcasted is the state of the Broadcast icon, which is active when broadcasting and inactive when not broadcasting.
Local Surveillance Audio Conferencing

Once video is playing in the Local Surveillance window click the Audio Conferencing icon to initiate hosting an audio conference session. By hosting an audio conferencing session a remote system can conduct a two-way audio conference with the host system.

A REMOTE SYSTEM WILL NOT BE ABLE TO ENGAGE IN AN AUDIO CONFERENCE WITH THE HOST SYSTEM UNLESS THE AUDIO CONFERENCING ICON IS ACTIVE ON THE HOST SYSTEM.

Hosting an audio conference can be started and stopped as many times as necessary. The Audio Conferencing icon works as a toggle to start and stop hosting an audio conference.

The only indication that an audio conference is being hosted is the state of the Audio Conferencing icon, which is active when hosting and inactive when not hosting.

A two-way audio conference is possible when:

- The host system is playing video
- The host system Local Surveillance Audio Conference icon is active (pressed)
- A remote system is connected to the host system
- The remote system Remote Surveillance Audio Conference icon is active (pressed)
Local Surveillance Pictures

To capture a picture of the video that is being streamed in the Local Surveillance window click on the Picture icon 📸 any time that video is playing. A picture of the current video being displayed will be captured and automatically tagged and placed into storage that is retrievable by the DVM Pictures Window.

For most variations of DVM the image that is captured when the Picture icon is clicked is the actual Local Surveillance window as seen by the user. If the Local Surveillance window is in Quad mode then the captured image will be a duplicate of the quad layout in which all four cameras are visible in different quadrants.

For other variations of DVM, such as the 4-port USB Grabber, each individual camera is managed separately by the Picture module. When the Picture icon is clicked in the Local Surveillance window then each camera takes a picture of its own stream. The separate pictures are then automatically tagged and placed into storage that is retrievable by the DVM Pictures Window.
Select or Move Zones

DVM supports the ability to set specific areas within the video window to detect for motion, called zones. To select one or more zones for a particular camera click the Zones icon 📸. The Zones dialog will open with the still image of the current camera’s video, as shown below.

THE ZONES ICON WILL ONLY BECOME ENABLED IF AN INDIVIDUAL CAMERA IS BEING DISPLAYED. IN ANY OTHER COMBINED LAYOUT, SUCH AS QUAD, PICTURE-IN-PICTURE OR SEQUENCE MODE, THE ZONES ICON IS DISABLED.

Select a zone by pointing to a location within the picture, click and hold the left mouse button and drag to create a rectangular-shaped zone.
As many as 100 zones can be created for each camera. Zones can overlap with one another.

Press the OK button to save the zones. When returning to the Local Surveillance window you will see the zones appear as yellow transparent rectangles if motion detection has been set to active and the Show Zones checkbox is checked in the Motion Detection tab of the Video Source settings dialog.
Remote Surveillance Monitor

Remote Surveillance Monitor Layout

The Remote Surveillance Monitor displays one or more cameras that are remotely connected to a *host system*.

A monitor is a surveillance window that displays the video of one or more cameras. For more information on monitors and cameras see [Cameras and Monitors](#).

The Remote Surveillance window contains a toolbar and a display area, as shown below:

![Remote Surveillance: Remote View](image)

The display area displays video from one or more remote cameras, depending on the host to which the *remote system* is connected. The toolbar controls the video connection and enables the user to configure the remote monitor and host camera settings.
Remote Surveillance Toolbar

The toolbar of the Remote Surveillance window controls the video connection to the host system, and enables the user to configure settings related to the remote monitor and the host connected cameras.

**ICONS WILL ONLY APPEAR ENABLED IF THEY ARE CAPABLE TO PERFORMING AN ACTION. FOR EXAMPLE, THE STOP ICON WILL ONLY BE ENABLED IF VIDEO IS BEING PLAYED.**

The Remote Surveillance toolbar contains the following possible options:

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Play</td>
<td>Initiate a connection and play video</td>
</tr>
<tr>
<td></td>
<td>Stop</td>
<td>Close connection and stop video</td>
</tr>
<tr>
<td></td>
<td>Audio Conferencing</td>
<td>Connect to the host audio conferencing</td>
</tr>
<tr>
<td></td>
<td>Picture</td>
<td>Take a picture</td>
</tr>
<tr>
<td></td>
<td>Settings</td>
<td>Display monitor and camera settings dialog</td>
</tr>
<tr>
<td></td>
<td>Remote Settings</td>
<td>Display monitor and camera settings dialog of the host system</td>
</tr>
<tr>
<td>1</td>
<td>Camera 1</td>
<td>Switch to display camera 1 (only available with multi-camera version)</td>
</tr>
<tr>
<td>2</td>
<td>Camera 2</td>
<td>Switch to display camera 2 (only available with multi-camera version)</td>
</tr>
<tr>
<td>3</td>
<td>Camera 3</td>
<td>Switch to display camera 3 (only available with multi-camera version)</td>
</tr>
<tr>
<td>4</td>
<td>Camera 4</td>
<td>Switch to display camera 4 (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Rotate Sequence</td>
<td>Display cameras in timed sequence - one after the other (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Quad</td>
<td>Display cameras in quad mode (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Picture in Picture 1</td>
<td>Display cameras in picture-in-picture 1 mode (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Picture in Picture 2</td>
<td>Display cameras in picture-in-picture 2 mode (only available with multi-camera version)</td>
</tr>
<tr>
<td></td>
<td>Picture in Picture 3</td>
<td>Display cameras in picture-in-picture 3 mode (only available with multi-camera version)</td>
</tr>
<tr>
<td>mode (only available with multi-camera version)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Controlling Remote Surveillance**

The Remote Surveillance window allows you to connect with a host system using VCR-style icons. The icons for controlling a host connection are the Play and Stop icons.

When the Remote Surveillance first opens only the Play icon is enabled. Click the Play icon to establish a connection with a host system. Once a connection with a host system has been established the Stop and Remote Settings icons become enabled, and the Play icon is disabled.

**THE REMOTE SURVEILLANCE SETTINGS MUST FIRST BE CONFIGURED TO IDENTIFY A HOST SYSTEM PRIOR TO ATTEMPTING TO CONNECT WITH THE HOST SYSTEM.**

When the Remote Surveillance window first starts to connect to a host system there can often be a delay of 6 - 20 seconds before video is actually displayed, depending on the power of the host system, the power of the remote system, and the bandwidth of the Internet connection.

**A delay of several seconds when first connecting a Remote Surveillance to a host system is typical. The startup time is primarily dependant on the Internet link of both the host system and the remote system, as well as power of the remote system.**

Keep the following points in mind when controlling Remote Surveillance:

- **Play** - The Play button is only enabled when video is stopped and no connection is established. When video is playing and a connection is established the Play button is disabled.

- **Stop** - The Stop button is only enabled while video is playing. When the Stop button is clicked the connection is stopped.
Using the DDNS Server

The built-in DDNS Server is used to match a Host System with a Remote System. Many Internet connections are now linked to ISP providers than change the IP address of the connected computer every several minutes. While this does not affect typical Internet operations, to connect a Remote System to a Host System for remote video surveillance requires that the Remote System knows the IP address of the Host System. The DDNS Server is used in situations where the Host System IP address can change each time the user connects to the Internet.

Making a DDNS Server connection between a Host System and Remote System requires two steps:

1. **Set up the Host System with the DDNS Server**

2. **Enter the correct DDNS Server lookup information at the Remote System**

This will connect the Host System and Remote System without having to know the IP address of the Host System.
Remote Surveillance Settings

Click the Settings icon in the Remote Surveillance window toolbar to display the Remote Surveillance Monitor settings dialog.

THE MONITOR SETTINGS DIALOG WILL APPEAR DIFFERENTLY DEPENDING ON WHETHER A CONNECTION IS ACTIVE WITH A HOST SYSTEM AND VIDEO IS BEING DISPLAYED.

Monitor Settings When Video Is Playing  

Monitor Settings When Video Is Not Playing

![Monitor Settings: Remote View](image)

When a connection with a host system is active and video is being displayed many settings are not available that are actively being used by DVM. All monitor settings automatically become available when a connection is stopped and video stops playing.

The dialog displays several tabs that are used to configure the Remote Surveillance monitor as follows:

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Name of monitor</td>
</tr>
<tr>
<td>Host Access</td>
<td>Values that identify a host system</td>
</tr>
<tr>
<td>Communication</td>
<td>Values that affect how data is</td>
</tr>
</tbody>
</table>
communicated between the remote system and the host system
Remote Setting Tabs

Monitor Setting - General Tab

The General tab contains information that describes the monitor.

The General Tab contains the following fields:

- **Label** - The Label is the name assigned to the Monitor. When DVM first starts up it automatically assigns names to monitors based on their function, such as 'Single Camera' for a Local Surveillance monitor if the monitor supports only one camera. A user can modify the name of the monitor to something more indicative to the setting, such as 'Store Monitor'. The name of the monitor appears in the window title. For example, a single camera monitor will by default have a label of 'Single Camera'. The title on the Local Surveillance window will read 'Local Surveillance: Single Camera', as shown below. Changing the label will change the title of the Local Surveillance window.
- **Type** - The type of monitor is assigned by DVM and is used for information purposes only.
Monitor Settings - Host Access Tab

The Host Access tab contains information that describe the Internet address of the *host system*. This address is used when initiating a connection to the host system.

**Monitor Settings: Remote View**

*Monitor Settings: Remote View* screen with fields for Host Access and Communication.

- **Method** - There are two types of methods for communicating with a host system:
  - **Fixed IP** - This option is used when the remote user knows the precise *IP address* of the host system, and the host system IP address does not change.
  - **DNS Name** - This option is used in conjunction with a third-party DNS name resolution facility such as www.DynDNS.org so that the host system can be referred to by a named address. This option is

---

This tab is only available when video is not running.

**THE HOST ACCESS TAB FIELDS ARE ENABLED AND DISABLED BASED ON THE METHOD FIELD SELECTION.**

---

- **Method** - There are two types of methods for communicating with a host system:
  - **Fixed IP** - This option is used when the remote user knows the precise *IP address* of the host system, and the host system IP address does not change.
  - **DNS Name** - This option is used in conjunction with a third-party DNS name resolution facility such as www.DynDNS.org so that the host system can be referred to by a named address. This option is
necessary if the host system IP address can change during the
course of the host system session with its ISP service provider.

- **IP Address** - This field is used in conjunction with the Fixed IP method. Enter the fixed IP address of the host system.
- **DNS Name** - This field is used with the DNS Name for host method access. The DNS name is the Internet name supplied by the name resolution service, such as www.DynDNS.org.
- **Access host video using host port** - This field contains the video port number through which video is being broadcasted by the host system.
- **Lookup DDNS Server Button** - This is used to look up the Host Computer's URL name using a DDNS server. Refer to *Using the DDNS Server* for more information.
Monitor Settings - Communication Tab

The Communication tab contains information that describes how non-video data will be communicated between the host system and remote systems.

This tab is only available when video is not running.

The Communication tab contains the following fields:

- **Send data port** - All communication must be done through a designated port. By default data is sent out from the local system through port 5600. Users can modify this value. However, it should generally have a value between 5501 and 64000. Values below 5501 are considered reserve values for Windows and routers. Values above 6400 are not valid.
- **Receive data port** - The target system with which data is being communicated can also designate a specific port through which it communicates data. By default the target system data port is also set to port 5600. Users can modify this value. However, it should generally have a value between 5501 and 64000. Values below 5501 are considered reserve values for Windows and routers. Values above 6400 are not valid.
- **Password** - The local system can designate a password that is necessary for any data communication to occur. By leaving this field blank indicates that there is no password requirement for the remote system to access the
host system data. Enter a password to require the remote system to provide a password when initiating a communication session with the host.

- **Confirm** - The Confirm field is used to verify that the password entered was the intended value. By forcing the user to enter the password twice ensures that the value is correct.

The Send and Receive data communication ports can be the same value since they represent ports on two separate systems, the local and target systems respectively.
**Video Recordings**

**Video Recordings Window Layout**

The Video Recordings window displays the list of videos that have been recorded by any of the monitor windows, such as the Local Surveillance window.

The Video Recordings window contains a toolbar and two windows panes, as shown below:

The left window pane contains a calendar, list and scroll bar. The left window pane is used to select the recorded video to play back.

The right window pane is the display area which displays video from a selected recording.

The toolbar controls the video and enables the user to select from several video recording options.
Video Recordings Toolbar

The toolbar of the Video Recordings window controls the selected video to be replayed, and enables the user to select related settings.

The Video Recordings toolbar contains icons that depend on the system you have installed. Single-camera systems display fewer icons than multi-camera systems.

**ICONS WILL ONLY APPEAR ENABLED IF THEY ARE CAPABLE TO PERFORMING AN ACTION. FOR EXAMPLE, THE STOP ICON WILL ONLY BE ENABLED IF VIDEO IS BEING PLAYED.**

The Video Recordings toolbar contains the following possible options:

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="pause_icon" alt="Pause" /></td>
<td>Pause</td>
<td>Pause video</td>
</tr>
<tr>
<td><img src="play_icon" alt="Play" /></td>
<td>Play</td>
<td>Play video</td>
</tr>
<tr>
<td><img src="stop_icon" alt="Stop" /></td>
<td>Stop</td>
<td>Stop video</td>
</tr>
<tr>
<td><img src="archive_icon" alt="Archive" /></td>
<td>Archive/Unarchive selected video files</td>
<td></td>
</tr>
<tr>
<td><img src="picture_icon" alt="Picture" /></td>
<td>Picture</td>
<td>Take a picture</td>
</tr>
<tr>
<td><img src="camera1_icon" alt="Camera 1" /></td>
<td>Camera 1</td>
<td>Switch to display camera 1 (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="camera2_icon" alt="Camera 2" /></td>
<td>Camera 2</td>
<td>Switch to display camera 2 (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="camera3_icon" alt="Camera 3" /></td>
<td>Camera 3</td>
<td>Switch to display camera 3 (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="camera4_icon" alt="Camera 4" /></td>
<td>Camera 4</td>
<td>Switch to display camera 4 (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="rotate_sequence_icon" alt="Rotate Sequence" /></td>
<td>Rotate Sequence</td>
<td>Display cameras in timed sequence - one after the other (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="quad_icon" alt="Quad" /></td>
<td>Quad</td>
<td>Display cameras in quad mode (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="picture_in_picture1_icon" alt="Picture in Picture 1" /></td>
<td>Picture in Picture 1</td>
<td>Display cameras in picture-in-picture 1 mode (only available with multi-camera version)</td>
</tr>
<tr>
<td><img src="picture_in_picture2_icon" alt="Picture in Picture 2" /></td>
<td>Picture in Picture 2</td>
<td>Display cameras in picture-in-picture 2 mode (only available with multi-camera version)</td>
</tr>
<tr>
<td>![Picture in Picture 3]</td>
<td>Display cameras in picture-in-picture 3 mode (only available with multi-camera version)</td>
<td></td>
</tr>
</tbody>
</table>
Selecting a Video Recording for Playback

The Video Recordings window enables you to navigate the list of recorded videos using a calendar control. When the Video Recordings window opens the calendar is set to the current day.

For example the calendar below was opened on September 28, 2004.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Description</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Current Day</td>
<td>The current day is highlighted with a red rectangle</td>
</tr>
<tr>
<td>17</td>
<td>Current Selection</td>
<td>The currently selected day for listing video recordings is highlighted in reverse</td>
</tr>
<tr>
<td>14</td>
<td>Contains Recordings</td>
<td>Days which contain video recordings are listed in bold</td>
</tr>
<tr>
<td>16</td>
<td>Contains No Recordings</td>
<td>Days which do not contain video recordings are listed in standard type</td>
</tr>
<tr>
<td>31</td>
<td>Not Current Month</td>
<td>Days which are not in the current month (trailing days of the prior month and advance days of the next month) are listed in faded type</td>
</tr>
<tr>
<td></td>
<td>Next Month</td>
<td>Button that moves the calendar ahead one month</td>
</tr>
<tr>
<td></td>
<td>Prior Month</td>
<td>Button that moves the calendar to the prior month</td>
</tr>
<tr>
<td></td>
<td>Month Selector</td>
<td>Button that lists the months of the year for selection</td>
</tr>
<tr>
<td></td>
<td>Year Selector</td>
<td>Button that lists the years for selection</td>
</tr>
</tbody>
</table>
When a day on the calendar is selected the video recordings list is updated. This list contains the video recordings for the selected day.

For example, the video recordings list below contains several entries:

<table>
<thead>
<tr>
<th>Monitor</th>
<th>Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVM Quad USB</td>
<td>07:16:58</td>
</tr>
<tr>
<td>DVM Quad USB</td>
<td>07:17:17</td>
</tr>
<tr>
<td>DVM Quad USB</td>
<td>07:17:44</td>
</tr>
<tr>
<td>DVM Quad USB</td>
<td>07:51:49</td>
</tr>
<tr>
<td>Single Camera</td>
<td>07:50:04</td>
</tr>
<tr>
<td>Single Camera</td>
<td>07:50:00</td>
</tr>
</tbody>
</table>

Each entry lists the monitor that generated the video recording and the start time. Each entry is preceded by a bitmap that indicates what generated the recording:

<table>
<thead>
<tr>
<th>Bitmap</th>
<th>Description</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>Manual Recording</td>
<td>Indicates that the recording was initiated by the user by pressing the Record icon on the Local Surveillance window toolbar</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Motion Detection</td>
<td>Indicates that the recording was initiated by the motion when triggered by an alarm</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Scheduled Event</td>
<td>Indicates that the recording was initiated by a scheduled event</td>
</tr>
</tbody>
</table>

To play a recording either double-click on its entry, or select the entry and click the Play button on the toolbar.
Pictures

Pictures Window Layout

The Pictures window displays the list of pictures that have been captured by any of the monitor windows, such as the Local Surveillance window.

The Pictures window contains a toolbar and two windows panes, as shown below:

The left window pane contains a calendar and list. The left window pane is used to select the picture to display.

The right window pane is the display area which displays the selected picture.

The toolbar enables the user to select from several options for managing pictures.
Pictures Window Toolbar

The Pictures window toolbar contains the following possible options:

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🏷️</td>
<td>Print</td>
<td>Print the currently selected picture</td>
</tr>
<tr>
<td>💌</td>
<td>E-Mail</td>
<td>E-Mail currently selected picture</td>
</tr>
<tr>
<td>🗝️</td>
<td>Archive</td>
<td>Archive/Unarchive selected video files</td>
</tr>
</tbody>
</table>
Selecting a Picture to Display

The Pictures window enables you to navigate the list of pictures using a calendar control. When the Pictures window opens the calendar is set to the current day.

For example the calendar below was opened on September 28, 2004.

![Calendar Image]

The calendar contains the following notations:

<table>
<thead>
<tr>
<th>Notation</th>
<th>Description</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Current Day</td>
<td>The current day is highlighted with a red rectangle</td>
</tr>
<tr>
<td>17</td>
<td>Current Selection</td>
<td>The currently selected day for listing video recordings is highlighted in reverse</td>
</tr>
<tr>
<td>14</td>
<td>Contains Pictures</td>
<td>Days which contains pictures are listed in bold</td>
</tr>
<tr>
<td>16</td>
<td>Contains No Pictures</td>
<td>Days which do not contain pictures are listed in standard type</td>
</tr>
<tr>
<td>31</td>
<td>Not Current Month</td>
<td>Days which are not in the current month (trailing days of the prior month and advance days of the next month) are listed in faded type</td>
</tr>
<tr>
<td></td>
<td>Next Month</td>
<td>Button that moves the calendar ahead one month</td>
</tr>
<tr>
<td></td>
<td>Prior Month</td>
<td>Button that moves the calendar to the prior month</td>
</tr>
<tr>
<td></td>
<td>Month Selector</td>
<td>Button that lists the months of the year for selection</td>
</tr>
<tr>
<td></td>
<td>Year Selector</td>
<td>Button that lists the years for selection</td>
</tr>
</tbody>
</table>

When a day on the calendar is selected the pictures list is updated. This list contains the pictures for the selected day.
For example, the pictures list below contains several entries:

<table>
<thead>
<tr>
<th>Label</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera 3</td>
<td>07:35:27</td>
</tr>
<tr>
<td>Camera 6</td>
<td>07:35:27</td>
</tr>
<tr>
<td>Camera 4</td>
<td>07:35:27</td>
</tr>
<tr>
<td>Camera 5</td>
<td>07:35:27</td>
</tr>
</tbody>
</table>

Each entry lists the monitor or camera that generated the picture and the time that the picture was captured.

To display a picture double-click on its entry.
Feedback Window

Opening the Feedback Window

The Feedback window notifies the user of activity within DVM or of error conditions that occurred as a result of an incorrect selection or action.

To open the Feedback window select the View | Feedback menu option.
Feedback Window Layout

The Feedback window notifies the user of activity within DVM or of error conditions that occurred as a result of an incorrect selection or action.

The Feedback window is a simple list with several columns.

The columns in the Feedback window are:

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Time that the feedback message was generated.</td>
</tr>
<tr>
<td>Message</td>
<td>Feedback message text.</td>
</tr>
<tr>
<td>Function</td>
<td>Not visible by default. Used by DVM for internal purposes.</td>
</tr>
<tr>
<td>Location</td>
<td>Not visible by default. Used by DVM for internal purposes.</td>
</tr>
</tbody>
</table>

DVM can generate multiple messages as a result of an action. The Feedback window lists messages in the order that they were received. When the list of messages exceed the visible display area a scroll bar will enable the user to scroll up and down the list of messages.
Feedback Window Toolbar

The Feedback window toolbar contains the following possible options:

<table>
<thead>
<tr>
<th>Small Icon</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Display Status</td>
<td>Toggle icon that activates or deactivates displaying status messages</td>
</tr>
<tr>
<td></td>
<td>Messages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Display Warning</td>
<td>Toggle icon that activates or deactivates displaying warning messages</td>
</tr>
<tr>
<td></td>
<td>Messages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Display Error</td>
<td>Toggle icon that activates or deactivates displaying error messages</td>
</tr>
<tr>
<td></td>
<td>Messages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delete Messages</td>
<td>Clears the Feedback window of all messages</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Save Messages</td>
<td>Prompts the user to save messages in the Feedback window to a text file</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E-Mail (Tech Support) Feedback File</td>
<td>Creates a new e-mail to Tech Support with the messages in the Feedback window as a text file attachment</td>
</tr>
</tbody>
</table>
**Reading Feedback Messages**

Feedback messages are displayed in the Feedback window as events within DVM occur. Some messages indicate that an error occurs, while other messages are simply notifications of status.

Below is a sample Feedback window listing.

![Feedback Window](image)

This Feedback window listing contains a single entry that indicates a valid label and password is necessary for a particular form.

The picture at the left of each message indicates its type.

<table>
<thead>
<tr>
<th>Bitmap</th>
<th>Message Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>📈</td>
<td>Status Messages</td>
<td>Message is a status notification</td>
</tr>
<tr>
<td>⬇️</td>
<td>Warning Messages</td>
<td>Message is a warning notification</td>
</tr>
<tr>
<td>🔴</td>
<td>Error Messages</td>
<td>Message is an error notification</td>
</tr>
</tbody>
</table>

In general the Feedback window displays messages that are simple to understand. A status message is useful to indicate a DVM action that occurred. Error and warning messages will typically be clear and can assist a user in solving a problem quickly.

There are error conditions that can occur that display messages that are too long to fit in the Message column, or may not be readily understandable by a user, such as the message below.
Double-click on the message with the left mouse button to prompt the Feedback Detail dialog that displays the full content of the message.

If the detailed message is still not clear enough to take user action, then close the Feedback Detail dialog and e-mail the Feedback Window contents to technical support by clicking the E-Mail Feedback File icon of the Feedback Window toolbar.
Tools
DDNS Server

Setting up a Host System with the DDNS Server

The built-in DDNS Server is used to match a Host System with a Remote System. Many Internet connections are now linked to ISP providers than change the IP address of the connected computer every several minutes. While this does not affect typical Internet operations, to connect a Remote System to a Host System for remote video surveillance requires that the Remote System knows the IP address of the Host System. The DDNS Server is used in situations where the Host System IP address can change each time the user connects to the Internet.

The DDNS Server window can only be accessed from the main menu by selecting Tools | DDNS Server.
IT IS RECOMMENDED TO ALWAYS KEEP THE FEEDBACK WINDOW IN VIEW WHEN DEALING WITH THE DDNS SERVER TO MONITOR THE DDNS SERVER FEEDBACK.

The DDNS Server contains the following fields:

- **First Name** - Enter your first name.
- **Last Name** - Enter your last name
- **EMail** - Enter your e-mail address
- **Region** - Select your region
- **Country** - Select your country
- **Time Zone** - Select your time zone
- **Username** - This field will automatically contain the concatenation of your first name and last name. You can override this field.
- **Password** - Enter a password
- **Verify Password** - Re-enter the password for verification

THE USERNAME AND PASSWORD IS USED BY THE REMOTE SYSTEM TO FIND THE HOST SYSTEM. KEEP THIS INFORMATION WITH YOU WHEN YOU CONNECT FROM A REMOTE SYSTEM.

- **Product Code** - Select the product code from the list
- **URL Identifier** - You can:
  - **Use Default Value** - DVM will assign a default value for the URL Identifier.
  - **Overwrite** - You can select your own URL identifier. Note that the URL Identifier must be exactly 12 characters in length.

THE URL IDENTIFIER IS USED TO CREATE THE UNIQUE URL FOR THE HOST SYSTEM. THE URL OF THE HOST BECOMES THE FOLLOWING ADDRESS:

<URL IDENTIFIER>.Lorex Technology Inc.NET

TO MAKE THE URL MORE READABLE OVERWRITE THE DEFAULT UNIQUE ALPHANUMERIC URL IDENTIFIER. WHEN YOU PRESS THE REGISTER BUTTON THE FEEDBACK WINDOW WILL INDICATE WHETHER THE URL YOU SELECTED IS AVAILABLE.
• **Update Frequency** - In order to inform the DDNS Server of your IP address it sends out a periodic signal that lets the DDNS server know the current IP address of the Host System.
  - **Minutes** - Sets the number of minutes between sending out a signal to the DDNS server. This cannot be set to less than 5 minutes.
  - **Automatically Update Server** - Check box to enable or disable auto-update.

Once the form is completed select from the following options:

• **Register** - Register your Host System with the DDNS Server using the form information.

  **CHECK THE FEEDBACK WINDOW TO ENSURE THAT THE HOST SYSTEM HAS BEEN SUCCESSFULLY REGISTERED BY THE DDNS SERVER.**

• **Test Update** - Send a manual update to the DDNS Server to make sure that the DDNS Server is communicating properly. Check the Feedback window for results.

• **Test IP/URL** - Send a message to the DDNS Server to confirm that the DDNS Server contains the correct IP Address and URL. Check the Feedback window for results.

• **New URL ID** - Generates a new unique URL Identifier.
Setting up the Remote System with the DDNS Server

The Remote System can find a Host System's DDNS entry using just the Username and Password that was entered in the Host System DDNS form.

Click the Settings icon in the Remote Surveillance window toolbar to display the Remote Surveillance Monitor settings dialog. Select the Host Access tab.

To find the Host System's DDNS entry press the **Lookup DDNS Server** button. This prompts the **DDNS Server Lookup** dialog.

Enter the **Username** and **Password** fields and press the **OK** button.

The Host System's IP Address and DNS name will appear in the **IP Address** and **DNS Name** fields of the Settings dialog.
Broadcast Security

Broadcast security is used to control access to the host computer’s video when video is broadcasted. The Broadcast Security window can only be accessed from the main menu by selecting Tools | Broadcast Security. Broadcast security operates by either allowing computers with specific IP addresses to access the host camera, or by denying specific IP addresses from accessing the host camera.

**BROADCAST SECURITY AFFECTS ALL CAMERAS FROM ANY MONITOR THAT ARE BROADCAST FROM THE HOST SYSTEM.**

The Broadcast Security contains two parts: Allow and Deny.

To add an IP address to the list of Allowable or Denies IP address simply click on the Add button of either the Allow or Deny section. This prompts with the following dialog:
Enter the IP address and IP Mask to allow or deny an IP address. Continue to add IP addresses to the Allow or Deny list as warranted to maintain proper security.

**WARNING:**

ADDING A SINGLE ALLOW IP ADDRESS WILL AUTOMATICALLY DENY ANY OTHER IP ADDRESS EXCEPT FOR THE ONE ALLOWED. ADDING A SINGLE DENY IP ADDRESS WILL AUTOMATICALLY ALLOW ANY IP ADDRESS EXCEPT FOR THE ONE DENIED.
Sound Recorder

Sound Recorder is a bundled Windows application for creating .wav files that contain sounds. Sound Recorder can be launched from the main menu option Tools | Sound Recorder.

It is included in DVM for two purposes:

1) To provide a recognizable interface for selecting the default audio device used for recording audio along with video

2) To provide a recognizable interface for creating new sounds that can be used as Actions for Alarms

Refer to the Sound Recorder's Help file for information on how to use the Sound Recorder.
Hide Application

DVM includes a unique security feature that enables the user to hide the host application while it is still functioning. The computer screen and Task Manager will have no indication that DVM is actually running, even while it is operating cameras, recording and checking alarms. In this way DVM can be kept from the view of others who happen to be in the vicinity of the Host system.

Whatever was running on DVM prior to selecting Hide Application will continue to run even after DVM is hidden from view.

To hide DVM select the Tools | Hide Application from the main menu. To Unhide DVM press CTRL + SHFT + F5.

**Warning:** Once DVM is hidden there is no way to retrieve DVM except by using CTRL + SHFT + F5. Closing the computer will automatically shut down DVM.
Reset Monitors

If DVM is experiencing unexpected behavior or crashes it is possible that the files that DVM maintains to track cameras, monitors, and settings, and window locations is corrupted. Selecting **Tools | Reset Monitors** enables you to reset all aspects of DVM to a default state. When selected you will be prompted with the following message as a precaution:

![Warning message](image)

**RESETTING MONITORS WILL CAUSE YOU TO LOSE ANY APPLICATION, MONITOR AND CAMERAS SETTINGS THAT WERE CHANGED.**

By pressing Yes DVM will delete the data file that contains all DVM settings and close DVM. When DVM is re-opened there will be no active windows within DVM.
About Dialog

The DVM About dialog is selected by pressing **Help | About...**, and contains some useful information about DVM.

![About Dialog]

At times technical support may request the following information that is contained in the Help | About dialog:

- **Version** - This is the release version of DVM that is running, and is formatted as [Major].[Minor].[Build] version.
- **IP Address** - This is the IP address that DVM picks up for the current computer.
Knowledge Base

Concepts

Cameras and Monitors

DVM is based on a similar premise of a physical security system that distinguishes between a camera and a monitor. A camera is the physical device that captures video. A monitor is the physical device that displays the video. One or more physical cameras can be connected to a physical monitor. A monitor that displays one camera will do so with the single video stream occupying the entire size of the monitor. If more than one camera is attached to a monitor, then the monitor will offer the user a choice of displaying a single camera at a time, or to divide the display area of the monitor so that each camera's video stream appears in a different section, or quadrant, or the display.

DVM supports a similar concept of cameras and monitors, while taking advantage of features that can only be offered by a digital security system.

With DVM all surveillance windows are considered monitor displays. The Local Surveillance window displays cameras that are locally connected to the host system. The Remote Surveillance window displays cameras that are connected to a remote system. The monitor window offers users the option to configure monitor-specific settings, such as alarms and scheduled events. For multi-camera systems the user can select which cameras are connected to the monitor, by selecting cameras from an available list. Each camera can be separately configured for settings such as motion detection and video recording quality.
Computer Addressing

IP Address

In order to communicate with other computers or websites on the internet, all computers use an addressing mechanism called an IP (Internet Protocol) address to uniquely identify each computer on the internet. An IP address is a 32-bit numeric address written as four numbers separated by periods, where each number can be from zero to 255. For example, entering the IP address 216.239.37.99 into a browser would cause Google’s home page to be displayed. By mutual agreement, and in order to prevent multiple people from using the same IP address, all IP addresses are handed out from a central governing body. This ensures that each and every computer attached to the internet has a guaranteed unique IP address, and that it will not be confused with another computer. IP Addressing works much like your home or office address does – it uniquely identifies your computer t the internet so that all communications sent to it arrives at the correct computer.

Fixed IP

A Fixed IP address (also called a Static IP address) is an IP address that is provided to you that never changes. In the example IP address above, the company Google has a Fixed IP address of 216.239.37.99 and if you enter that IP address into a browser it will always take you to Google’s home page. A Fixed IP address is precisely like a house address in that it will never change. When you go on vacation and place your mail delivery on hold your home address does not change. When you restart mail delivery all mail sent to your address will still be delivered to your house. A Fixed IP address is the exact same. You can shut down your computer for any length of time. When you restart the computer it will have the same IP address as it did before.

DHCP

Dynamic Host Configuration Protocol (DHCP), or Dynamic IP, addressing is a protocol used for automating the assignment of IP addresses for computers. Instead of providing a specific Fixed IP address that forever identifies your computer, a new and unique IP address is given to your computer each time it connects to the internet. For example, if you connect your computer to the internet your ISP will give you a unique IP address – such as123.123.123.123. If your computer remains internet-idle (i.e. does not access the internet) for a specified period of time, then that IP address will be freed up by your ISP and will no longer point to your computer. When you next connect to the internet – even if only a few seconds after the internet-idle time has transpired – your computer will get a new and different IP address, such as 141.33.55.88.
While Fixed IP addressing is very convenient from a user standpoint, most ISPs today use DHCP addressing. Using the DHCP protocol an ISP can purchase a smaller block of IP addresses and recycle unused addresses quickly, keeping their costs lower. If you are using DSL or a cable modem to connect to the internet from a typical home or office, you are probably using DHCP addressing.

It is important to remember that if your ISP uses DHCP addressing then it is possible that your IP address might change every few minutes. Typically, though, if an internet connection is active, such as when data is being streamed in or out of the internet to the computer every few seconds, then the IP address is likely to remain the same. However, if a longer period of time elapses without internet activity then the IP address may change the next time a connection to the internet is made. Contact your ISP for details on how long an IP address remains active.

**Routers**

A router is a device that joins many computers and devices together into a LAN, or Local Area Network. Routers use IP addressing to uniquely identify all the computers and devices on the LAN, and can typically be configured to use DHCP or Fixed IP addressing. The router also acts as the single point of interface to the internet, allowing multiple computers to share a single internet connection. Any computer that wants to send something over the internet will send the information to the router, and the router will forward it out to the internet. When something comes in from the internet the router will identify which computer it belongs to and will forward it to the appropriate computer in the LAN.

A router also helps secure your computer from malicious hackers by hiding your computer’s internal LAN IP address from hackers on the internet. The router will negotiate the Dynamic IP address with your ISP, but will use a completely different IP address internal to the LAN to uniquely identify each computer inside the LAN. Typically, the IP addresses of the computers inside your LAN will be completely unrelated to the IP address used by the router for internet access. For example, Linksys routers typically use 192.168.1.nnn for all devices internal to the LAN. Thus, if you connected three computers to your router they might have the following addresses

192.168.1.101

192.168.1.102

192.168.1.103

However, your IP Address to the internet might be something completely different, such as 141.156.188.246.
Once a computer is booted and attached to a LAN, the IP address used to identify it on the LAN will not change until the computer is shut down and restarted. This is one realm that a router’s implementation of DHCP differs from how an ISP uses DHCP, and makes it a bit easier to determine the current IP address of a computer or device on a LAN.

DNS

The IP addressing mechanism described above is excellent for machines, because computers large and small can easily parse and understand arcane and bizarre groupings of numbers. However, IP addresses are easy for humans to remember. Therefore a DNS (Domain Name Service) was set up to allow users to enter web addresses (also known as URLs, or Uniform Resource Locators) in the more human-readable form of letters and words that we are more familiar with – such as http://www.SomeWebURL.com. When you enter a URL into a browser, it gets translated into an IP address by a DNS. You browser then uses the IP address to connect to the correct location for you. Using the example from above, if you enter Google’s URL of http://www.google.com into your browser, the DNS will translate it to the IP address of 216.239.37.99, and your browser will go to that IP address and retrieve Google’s home page. The DNS name look-up as well as translating it to an IP address is handled automatically for you by the various services and organizations set up to handle these requests.

URLs are generally easier for us to remember, and thus are the way most people prefer to access web sites and other locations on the internet.
X-10 Concepts

X-10 is one of several standards for digital signals to control devices over standard 120V/240V power lines - otherwise known as a Powerline Carrier Technology (“PCT”). An X-10 device that is plugged into an outlet can control an X-10 device, such as an X-10 lamp, that is plugged into a different outlet on the same power line. The advantage of PCT is its ubiquity - all homes and offices are already wired with standard electrical power so that any device that is plugged into a wall outlet can be digitally controlled from anywhere in the facility. X-10 in particular is an open and published standard and is the leading version of PCT in North America, with vast support for X-10 devices by numerous vendors, suppliers, installers and retail outlets.

Lorex Technology Inc and Core Video are not affiliated in any way with X-10. You will need to contact X-10 directly to purchase the “Firecracker” and other X-10 devices.

This section is for information purposes to help users who want to understand X-10. It is not necessary to understand the X-10 communication in order to use DVM, which hides these details from the user. Consult with X-10 too see what other features/options can be made available through X-10 for use with Digital Video Security System.

DVM integrates with the CM17a, or “FireCracker” X-10 controller that plugs into the serial port of your computer. The FireCracker is a popular X-10 computer interface controller because it combines a standalone remote controller with a wireless computer interface. The firecracker device itself is a small (1” x 1” x .5”) device that plugs into the 9-pin COM port. It sends an RF signal to a receiver/X-10 controller that plugs into a wall outlet. This enables the computer to be located anywhere within range of the X-10 FireCracker receiver. A 4-piece FireCracker starter kit retails for approximately $50.00 US.

Each device that implements X-10 is assigned a house code and a unit code, which is known as the device’s address. The house codes are alphabetic and ranges from A to P. The unit codes are numeric and range from 1 to 16. A lamp that is plugged into the wall through an X-10 outlet will therefore carry an address such as A1 or L15. These codes are typically set manually as shown below:
As originally implemented, the house code was expected to be unique per house. It is now common practice to use multiple (or all) house codes within a single location. When X-10 is used, a command is sent to a device with a specific house and unit code, such as “turn on the device (e.g. lamp) at address A1”. Any device that matches the intended address is expected to respond appropriately to the command. Commands include such things as Off, On, Dim, and Bright. It is possible to set the same address on multiple devices if you want them to all respond together.

X-10 works by encoding information on the house wiring using the 60 cycle house current as a carrier. The X-10 information is “written” at the zero crossing points (the moments in time when the 120 volt AC signal crosses 0 volts). A controller sends X-10 commands, while various receivers look for information addressed to them and take an appropriate action.

X-10 commands are simple binary values that represent the device address combined with the desired action. A multi-bit binary value (e.g. b1110) is sent to start a sequence, followed by a multi-bit device address followed by the multi-bit action command (e.g. turn on, turn off).

Typically X-10 commands are sent by standalone “controllers.” A controller is simply an X-10 device that can send X-10 commands. The device below is a handheld wireless X-10 remote (NOT an X-10 controller) that sends RF commands to an X-10 controller that is plugged into the wall. The remote control is used to send an RF signal (e.g. “turn on the device at address A1”) that is translated by the controller into an X-10 command and sent through the house wiring system.
FAQs

FAQ20001: Determining DVM Version

DVM releases contain a version number that is used in many instances to determine a course of action in helping to solve technical issues.

To determine the DVM version you are running select the Help | About... menu option from within DVM. The following dialog appears:

The About dialog contains several useful items of information. The version number is located as shown below.
FAQ20005: Determining Minimum System Requirements for DVM

DVM has the following minimum and recommended *host system* requirements:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Version</td>
<td>All version of Windows 2000, Windows XP and above</td>
<td>Windows XP and above</td>
</tr>
<tr>
<td>RAM</td>
<td>256 Mb</td>
<td>512 Mb for single camera; 1 Gb for multi-camera</td>
</tr>
<tr>
<td>Video Card</td>
<td>8 Mb RAM</td>
<td>16 Mb RAM</td>
</tr>
<tr>
<td></td>
<td>Updated driver that is Windows Media 9 compatible driver (drivers that are current as of January 2003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Display set to at least 16 color</td>
<td></td>
</tr>
<tr>
<td>USB</td>
<td>USB I</td>
<td></td>
</tr>
<tr>
<td>Windows Media Components</td>
<td>Windows Media Player 9 or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DirectX 9 or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Windows Media Encoder 9 or above</td>
<td></td>
</tr>
</tbody>
</table>

The simplest way to determine system and video card configuration information is to use the DirectX Diagnostic Tool.

From the **System Start** menu select the **Run...** menu option.
In the **Run** dialog type the word **dxdiag** and press the **OK** button.

 IF THE DIRECTX DIAGNOSTIC TOLL DOES NOT OPEN THIS MEANS THAT DIRECTX WAS NOT INSTALLED ON YOUR SYSTEM. REFER TO FAQ: WINDOWS MEDIA COMPONENTS REQUIRED FOR DVM.

The DirectX Diagnostic Tool will open to the main System tab.
The System tab of the DirectX Diagnostic Tool displays the following information:

- Operating System - should be Windows 2000 or Windows XP
- Memory (RAM) - should be at least 256Mb for a single camera device and 512Mb for a multi-camera device
- DirectX Version - should be Version 9 or above

Click on the Display tab for additional graphics card information.
The Display tab contains the following additional information:

- **Video Card Memory** - 8 Mb minimum, 16 Mb recommended. For a multi-camera device 32Mb is recommended.
- **Updated Video Card Driver** - Date of driver should be later than January 2003, which is the formal release date of Windows Media 9. If the driver date is prior to January 2003 then an updated video card driver should be installed using the Windows Driver Update facility.
- **DirectX Features** - All acceleration should be Enabled

All the Windows Media component download links can be found in the FAQ: Windows Media Components Required for DVM.
FAQ20006: Windows Media Components Required for DVM

DVM utilizes the sophisticated features available with Windows Media to provide advanced digital video security capabilities. Microsoft recommends and DVM requires the following minimum Windows Media components.

- Windows Media Player 9 or above
- DirectX 9 or above
- Windows Media Encoder 9 or above

If these components are not on the host DVM system, use the following links to download and install the relevant Microsoft Windows Media components.


FAQ20101: Updating Video Driver

DVM utilizes many features of Windows Media 9, which was released January 2003. To ensure that DVM operates properly the video driver should therefore have a release date that is at least current with the release of Windows Media 9.

ONLY WINDOWS CERTIFIED DRIVERS WILL BE ABLE TO BE UPDATED USING THE WINDOWS DRIVER UPDATE FACILITY DESCRIBED BELOW. CONTACT YOUR VIDEO CARD MANUFACTURER OR CHECK WITH THE FACTORY SITE FOR NON-CERTIFIED DRIVER UPDATE INSTRUCTIONS.

MAKE SURE THAT THE SYSTEM IS CONNECTED TO THE INTERNET TO ENSURE THAT WINDOWS CAN FIND UPDATED DRIVERS FROM THE WINDOWS DRIVER REPOSITORY.

To update a driver right-click on the Start | My Computer menu or the My Computer icon, and the select the Properties menu option.
Select the **Hardware** tab, and then click on the **Device Manager** button.

The Device Manager dialog appears. **Right-click** on the DVS Video driver under the **Imaging Device** top-level item, and select the **Update Driver** menu option.
The Hardware Update Wizard appears.
Click on the **Next** button to walk through the Windows **Hardware Update Wizard**. The **Hardware Update Wizard** will attempt to find an updated driver from the operating system and from the Internet (if the system is connected).

FAQ20102: Cannot Find Driver

Drivers for DVM are Microsoft certified, which means that the latest drivers are available on the internet from the Microsoft Windows Update server. On computers running Windows 2000 with no service packs, the Device Driver Installation wizard will not find the correct driver for the hardware. Updating your computer running Windows 2000 to the most recent Service Pack (Service Pack 4 at the time of this writing) should resolve the problem. For Windows XP computers, ensure that it is Service Pack 1 or above.

Steps for Windows 2000:

1. Remove the device from the USB port.

2. Update your computer to Service Pack 4.

3. Re-plug in the device into the USB port.

4. Follow the instructions in the Device Driver Installation wizard, setting the search location to look only at the Microsoft Windows Update server.

Steps for Windows XP (Professional or Home edition):

1. Remove the device from the USB port.

2. Update your computer to at least Service Pack 1.

3. Re-plug in the device into the USB port.

4. Follow the instructions in the Device Driver Installation wizard, setting the search location to look only at the Microsoft Windows Update server.
FAQ20301: Using PING to Verify Communication Between Computers

The Ping application is used to verify whether communication is available between two computers over the internet or a LAN. The ping application is available on all Windows computers, and can be run in a DOS command window as follows:

Click on Start->Run:

From the Run dialog enter "cmd" and press OK:
This will open a DOS command window.

In the DOS command window enter the address to ping using the syntax: "ping <IP Address>" where <IP Address> is the address of the target computer in the form of nnn.nnn.nnn, or its URL:

```
C:\>ping 192.168.1.1
Ping 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1:  bytes=32 time=3ms TTL=150
Reply from 192.168.1.1:  bytes=32 time=1ms TTL=150
Reply from 192.168.1.1:  bytes=32 time=1ms TTL=150
Reply from 192.168.1.1:  bytes=32 time=1ms TTL=150
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milliseconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms
```

A successful ping will return the results shown above, which indicates that a communication channel is available between your computer and the computer you are trying to ping. A successful ping test will look as follows:

```
C:\>ping www.google.com
Ping www.google.com [64.233.161.99] with 32 bytes of data:
Reply from 64.233.161.99:  bytes=32 time=31ms TTL=246
Reply from 64.233.161.99:  bytes=32 time=32ms TTL=246
Reply from 64.233.161.99:  bytes=32 time=31ms TTL=246
Reply from 64.233.161.99:  bytes=32 time=32ms TTL=246
Ping statistics for 64.233.161.99:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milliseconds:
    Minimum = 31ms, Maximum = 32ms, Average = 31ms
```

Sometimes a ping request is unsuccessful. There are typically two failure responses from a ping request, as described below.
Ping failed – Destination specified is invalid

If you entered an invalid IP address (or URL) ping will reply with “Destination specified is invalid” as shown below. If this occurs, verify the correct IP address of the computer you wish to communicate with.

```
C:\>ping 192.168.1.0
Pinging 192.168.1.0 with 32 bytes of data:
Destination specified is invalid.
Destination specified is invalid.
Destination specified is invalid.

Ping statistics for 192.168.1.0:
   Packets: Sent = 4, Received = 0, Lost = 4 <100% loss>,
   Approximate round trip times in milli-seconds:
       Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

If you get this result from your ping test, test whether you can ping at all by using a well known URL or IP address, such as www.nic.com or www.google.com.

Ping failed – Request timed out

A “Request timed out” response from Ping as shown below indicates that your computer was able to find the desired computer on your LAN or the internet, but that the other computer was unable to respond. This indicates a communication blockage between the two computers. Note that many hardware routers and software firewalls block Ping communication by default. Consult your router or firewall documentation to determine how to enable a ping test, and rerun the ping test once it is enabled. This test is an important step in confirming that communication is available between the two computers. Once the ping test is successfully run you can disable ping if you wish.

```
C:\>ping 192.168.1.101
Pinging 192.168.1.101 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.101:
   Packets: Sent = 4, Received = 0, Lost = 4 <100% loss>,
   Approximate round trip times in milli-seconds:
       Minimum = 0ms, Maximum = 0ms, Average = 0ms
```
FAQ20302: Using IPCONFIG to Determine the IP Address

IPCONFIG.EXE is a utility included with Windows. The purpose of this utility is to provide the user with diagnostic information related to network configuration, including determining your IP Address. The IPCONFIG utility can be run in a DOS Command window as follows:

Click on Start->Run:

From the Run dialog enter "cmd" and press OK:
This will open a DOS command window.

In the DOS command window enter "ipconfig" as shown below:

```
C:\>ipconfig
Windows 2000 IP Configuration
Ethernet adapter Local Area Connection 2:
    Connection-specific DNS Suffix . : 
    IP Address . . . . . . . . . . . . . . . : 192.168.1.100
    Subnet Mask . . . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . . : 192.168.1.1
Ethernet adapter Local Area Connection:
    Media State . . . . . . . . . . . . . : Cable Disconnected
```

If your computer is residing behind a hardware firewall or router the IP address shown may be the internal IP address of your computer. Consult the documentation of your router/firewall to determine your external (or internet) IP address.
FAQ20701: Configuring DVM for Remote Surveillance

This FAQ describes how to configure DVM for remote surveillance. Although most of this material is available in the Reference section of this Help Library, it is expanded here for clarity and convenience.

Remote surveillance requires the configuration of two computers - the host computer and the remote computer. The host computer is the computer that will be streaming the video out from its camera(s). The remote computer is the computer that will be receiving the video stream and displaying it. Using the DVM application the two computers will communicate with each other, either via your Local Area Network (LAN) or the internet.

If the host computer and remote computer are both connected to the same router, then you are implementing remote surveillance for LAN Surveillance and you need to follow the instructions for Host Computer Configuration and Remote Computer Configuration described below.

If your host computer and remote computer reside behind different routers (e.g. the host computer’s camera is looking at one room in your office and you are using a computer at home for remote surveillance) then you are doing Internet Surveillance. Follow the instructions for Host Computer Configuration and Remote Computer Configuration, plus the additional instructions for Router Configuration as well described below.

Note that when doing Internet Surveillance both the host computer and remote computer must have internet access with properly configured routers and software firewalls for bidirectional video and data communication. This FAQ describes what steps to take to configure your router or firewall if necessary. An explanation of how to configure your router and software firewall is beyond the scope of this document, but is available from the makers of those items.

**MAKE SURE THAT YOUR COMPUTER IS FIRST CONNECTED TO THE INTERNET FOR INTERNET REMOTE SURVEILLANCE PRIOR TO PROCEEDING WITH THE NEXT STEPS.**

Host Computer Configuration

1. Start the DVM application
2. Click on the menu item **Main | Local Surveillance Monitor** to open the **Local Surveillance** window
3. If video is not being displayed press the **Play ▶** icon on the toolbar to start playing local video
4. Click on the **Broadcast ✤** icon to start broadcasting video
5. Determine and save the IP address or domain name of the host computer:
   1. For LAN Surveillance click on the Help | About menu to display the About dialog which lists the IP address of the host computer
   2. For Internet Surveillance use the router or modem software to determine the internet-based IP Address to the ISP

Router Configuration

If you are doing internet-based remote surveillance then you must also forward certain ports (5600 and 5700 by default) from the router that is connected to the host computer. There are many brands of routers available, each with its own way of implementing port forwarding. We are therefore unable to describe the step-by-step instructions for port forwarding in this document. Consult your router documentation or contact the router manufacturer for instructions.

On the host computer, follow these steps:

1. Determine the local IP address of the computer. You can click on the Help | About menu item of DVM to determine the current local IP address. Note that this IP address may change every time you boot your computer if you are using a router with DHCP enabled, but will remain static once a computer is booted.
2. Determine the Port Forwarding configuration mechanism for your specific router
3. Forward ports 5600 and 5700 to the IP address of the host computer

Remote Computer Configuration

1. Start the DVM application
2. Click on the menu item Main | Remote Surveillance Monitor to open the Remote Surveillance window.
3. Click on the Settings icon to display the Monitor Settings dialog
4. On the Host Access tab select and set the Access Host Via as follows:
   1. For LAN Surveillance select Fixed IP method and enter the IP address of the host computer, as determined above
   2. For Internet Surveillance select the Fixed IP method and enter the internet-based IP address, or select the DNS Name method and enter the host computer's registered DNS name
5. Click on the Play icon in the Remote Surveillance window to connect to the remote host
A REMOTE CONNECTION TO THE HOST COMPUTER MAY TAKE UP TO 20 SECONDS, DEPENDING ON INTERNET TRAFFIC, ISP CONNECTION BANDWIDTH AND OTHER FACTORS.
FAQ20801: Selecting and Setting Audio Devices

DVM can be configured to optionally play and record sound along with the video stream. The audio device used by DVM to record sound is configured in the Local Surveillance window, as described below:

SELECTING OR SETTING AUDIO DEVICES CAN ONLY BE DONE WHILE VIDEO IS NOT BEING PLAYED.

1. In the Local Surveillance Window click on the Settings icon, to display the Monitor Settings dialog.

2. On the Video Sources tab select the camera you want to record sound from, and double-click on it to display the Video Source Settings dialog.

3. On the Audio Device tab select the Audio Device (microphone) and choose whether to play and/or record audio.

You can test your audio functionality using the Microsoft-supplied application called Sound Recorder. Sound Recorder will allow you to independently test just the sound capabilities of your computer and its various audio devices. Click on the menu item Tools | Sound Recorder to display the Microsoft Sound Recorder application.
FAQ20802: Recommended Audio Codec

DVM will select an appropriate default CODEC for all video recordings it makes. If, however, this setting gets inadvertently changed, you can manually choose the correct CODEC as follows:

From the Local Surveillance window click on the Settings toolbar icon.

From the Settings dialog select the Video Sources tab.

Double-click on the camera whose CODEC requires modification.

In the Video Source Settings dialog select the Audio Profile tab.
For default operation set the Codec, Format and Buffer values as follows:

Codec: Windows Media Audio 9

Format: 8 kbps, 8 kHz, mono CBR

Buffer: 3000

On some systems (typically Windows XP) a newer CODEC may be installed:

Codec: Windows Media Audio 9.1

Format: 8 kbps, 8 kHz, mono CBR

Buffer: 3000
FAQ20901: Reset DVM Configuration File

The *DVM configuration file* contains the detailed settings of DVM, such as window locations and camera settings, so that DVM can recall a user’s preference from one session to the next. The DVM configuration file, **DVM.dat**, is located in the DVM application folder within user's Application & Settings folder.

Under certain circumstances it may be necessary to delete the DVM configuration file to reset DVM. In particular, if a particular set of DVM values are causing system problems, then deleting the DVM configuration file may be the quickest way to resolve the conflict. Deleting the DVM configuration file causes the DVM application to use safe default values upon restarting.

**DVM Configuration Location**

The DVM configuration file can be found in the following location:

\[drive:]\Documents & Settings\[Username]\Application Data\DVM\DVM.dat

where [drive:] should be replaced with the default driver (typically c:) and [Username] should be replaced by the name of the user who is logged in, such as *Administrator*.

**Reset DVM Configuration File**

Determine the DVM version, and proceed accordingly.

**DVM Version 3.10.110 and Above**

Click on the menu item Tools | Reset Monitors as shown below:
DVM prompts with a warning message. Press the Yes button to continue.

The DVM application will then close itself. Restart the DVM application for the cameras and all other DVM settings to be automatically reconfigured.

**DVM Versions Prior to 3.10.110**

For DVM versions prior to 3.10.110 the DVM configuration file must be deleted manually.

_First exist out of the DVM application._
Locate the **DVM.dat** file using the information above and delete the file, or use the method below to locate the **DVM.dat** file.

For Windows XP users start the Windows Search facility from the main Start menu, **Start | Search**.

Select the option to search for **All files and folders** as shown below:
Enter the name DVM.dat (searches are not case sensitive by default).
Click on the **More advanced options**.
Make sure the **Search system folders**, **Search hidden files and folders**, and **Search subfolders** are checked. Then click the Search button. The resulting search will find a single DVM.dat file located in a subfolder within the Document & Settings folder.
Right click on the dvm.dat entry in the right-hand search results pane, and select the Delete option to delete the DVM configuration file.

Restart DVM with new default settings.

⚠️ AFTER DELETING THE DVM CONFIGURATION FILE, ALL WINDOW LOCATIONS PREVIOUSLY SET WILL BE LOST.
FAQ20905: Video Does Not Display

Sometimes video will not play correctly after because one or more components are not installed correctly or are not configured correctly. If DVM does not display video, follow these instructions to determine its cause and possible solutions.

**MAKE SURE TO READ THE TUTORIAL AND THE LOCAL SURVEILLANCE MONITOR SECTIONS FIRST TO ENSURE THAT VIDEO IS BEING USED PROPERLY**

1. **Ensure that your system is configured with the minimum required specifications for DVM**

   Check the computer, video card and Windows media components to ensure that the system is capable of operating DVM properly. Refer to FAQ: Determining Minimum System Requirements.

2. **Ensure that your system has the correct Windows Media components installed**

   Check and install the correct Windows Media components. Refer to FAQ: Windows Media Components Required for DVM.

3. **Reset the DVM configuration file**

   The *DVM configuration file* may contain incorrect data for the **host system**. Resetting the configuration file enables DVM to start with new settings that use the host system's capabilities. Refer to FAQ: Reset DVM Configuration File.

4. **Check if there is a DirectDraw limitation on the host computer**

   DirectDraw is a component of DirectX that is part of the Windows Media platform that is required for DVM (refer to Windows Media Components Required for DVM). DVM utilizes many of the sophisticated aspects of DirectX, and in particular some of the sophisticated elements of DirectDraw for rendering video on the display. To determine if there is a DirectDraw issue when attempting to display video, open the Feedback window prior to playing video (refer to Opening the Feedback Window). Then press the Play ▶ button on the Local Surveillance Monitor window to start playing video (refer to View Local Camera). If you see the error message below in the Feedback Window, refer to FAQ: Receive Feedback Error "Either DirectDraw..." for further problem-solving instructions.
When you double-click on the error the following dialog appears:

- **Time:** 11/08/04 11:28:46
- **Message:** Either DirectDraw has not been installed or the Video Card capabilities are not suitable. Make sure the display is not in 16 color mode.
- **Function:** CoCreateInstance
- **Location:** CVGlobal, 490
FAQ20908: DVM Crashes Upon Launch

If DVM crashes upon launch it indicates that the DVM configuration file contains camera data that conflicts with the system on which DVM is operating.

To correct this problem follow instructions to reset the DVM configuration file and restart DVM.
FAQ20910: Receive Feedback Error 'Either DirectDraw...'

DirectDraw is a component of DirectX that is part of the Windows Media platform that is required for DVM (refer to Windows Media Components Required for DVM). DVM utilizes many of the sophisticated aspects of DirectX, and in particular some of the sophisticated elements of DirectDraw for rendering video on the display. If DirectDraw cannot find the resources to display video, then DVM displays a message in the Feedback Window as follows:

When you double-click on the error the following dialog appears:

The error message is as follows:

Either DirectDraw has not been installed or the Video Card capabilities are not suitable. Make sure the display is not in 16 color mode.

This error message occurs for one or more of the following reasons:

1. DirectX 9 was not installed, or
2. The video card does not have sufficient memory, or
3. The driver for the video card is not updated, or
4. The display and/or video card is not configured correctly for DirectX
Follow these steps to ensure that the *host system* is properly configured for DVM:

1. Ensure that DirectX is installed. Refer to [FAQ: Determining Minimum System Requirements for DVM](#) for instructions on determining whether the correct version of DirectX is loaded on your system. Refer to the [FAQ: Windows Media Components Required for DVM](#) for instructions on downloading DirectX9 if necessary.

2. Refer to [FAQ: Determining Minimum System Requirements for DVM](#) for instructions on determining whether your video card has sufficient memory for DVM.

3. Refer to [FAQ: Determining Minimum System Requirements for DVM](#) for instructions on determining whether your video card driver is up-to-date.

4. Set the Display to 16-bit color or higher (as opposed to 16 color).

5. Refer to [FAQ: Determining Minimum System Requirements for DVM](#) for instructions on determining other DirectX settings required for DVM.

If these steps do not solve the problem or indicate the source of the problem contact tech support.
Problem Solving

Problem: Local Video Does Not Appear

Refer to FAQ20905: Video Does Not Display
Problem: Broadcasting Does Not Work

Refer to FAQ20701: Configuring DVM for Remote Surveillance
Problem: Remote System Does Not Connect to Host System

Refer to FAQ20701: Configuring DVM for Remote Surveillance
Glossary

A
Activate: An activated icon is one that is enabled and can be clicked

D
DVM configuration file: All settings, which include camera setup information, monitor setup information, window locations, are stored in a file on the user's system that is called the DVM configuration file.

H
Host System: A host system is the system on which the camera is running.

I
IP address: An IP Address is the address of a computer, generally used to identify the computer on a network or the Internet. In general IP addresses starting with 192.168.xxx.xxx are internal LAN addresses.

P
problem solving page: A page in the Knowledge Base in the Problem Solving book

R
Remote System: A remote system is the system that connects to a host system to view video and manage security remotely.
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